

MINING

CONGRESS JOURNAL

NOVEMBER, 1942



A
JOURNAL
for the
ENTIRE
MINING
INDUSTRY

Published
by the
AMERICAN
MINING
CONGRESS



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TIME *is rationed, too!*



THE urgent need for more coal, ore and strategic minerals to keep industrial production at the peak, has made time a vital factor in the mining industry.

The Sullivan 22-HD Core Drill can save time and increase production by proving mining properties swiftly and accurately. By blocking out productive coal seams and mineral deposits and by locating water courses, faults and other geological formations, the 22-HD eliminates all waste effort. You know what's below when you use the Sullivan 22-HD.

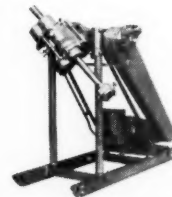
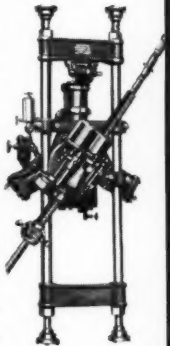
This modern, heavy-duty, high-speed core drill can bring up a core from a depth of 1750 feet, regardless of the material penetrated. The 22-HD has a built-in safety clutch, 4-speed transmission and is available for gasoline, diesel or electric drive.

SULLIVAN THE WORLD'S LARGEST FAMILY OF CORE DRILLS!

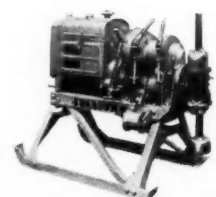


The No. 6, smallest of the Sullivan line of core drills, is a real "One-Man" machine. 100% flexible, it can drill at any point on back, sidewalls or floor. Underground capacity, 300 feet, with "EX" fittings.

The No. 22 drills more core per day because it is built for modern high-speed drilling. New design has increased the drilling rate by 50%. Rated at 1500 feet with "EX" fittings, gas or electric power.



The No. 7 is designed especially for surface exploration work. Capacity 500 feet with "EX" fittings.



The No. 12 has a capacity of 500 feet underground and 750 feet on the surface.

SULLIVAN

Birmingham
Boston
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and in Principal Cities Throughout the World

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EXECUTIVE OFFICES:

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ROCK DRILLS • AIR COMPRESSORS
SCRAPER HAULERS • HOISTS • LOADERS
CORE DRILLS • CORE DRILL CONTRACTING

MINING

CONGRESS JOURNAL

VOLUME 28, NUMBER 11

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8th Annual Conference

COAL DIVISION

American Mining Congress

William Penn Hotel

Pittsburgh, Pa.

December 1, 1942

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Ore Flows Steadily From the Great Pit of the Utah Copper Company.

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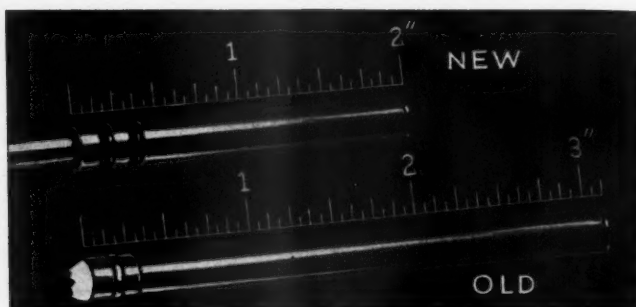


EASIER, SAFER PRIMING WITH DU PONT DELAY CAPS



"Superior Plug"

saves copper for war needs,
increases dependability



Compare the newer type Du Pont Delay Electric Blasting Cap shown above (*top*) with the old style (*bottom*). Both are 1st Delays, but the new type is equipped with the Du Pont "Superior Plug," a major improvement in design that gives these advantages:

1. **A SHORTER CAP**—that makes priming a cartridge easier and safer, yet contains the same explosives charge and strength.
2. **BETTER WATER RESISTANCE**—that surpasses former standards for *waterproof* caps and is always the same, regardless of temperature changes.

The Delay with the Du Pont "Superior Plug" is a full $1\frac{1}{8}$ " shorter than that using the old type closure and this is true for du Pont caps of every delay period. It's an improvement Uncle Sam likes because it saves copper—and it's one you will like, too, because of the increased ease and safety of priming.

Du Pont Delay Electric Blasting Caps with these exclusive advantages are available in ten standard periods—clearly identified by perforated tags of contrasting colors. They cost no more than ordinary delay electric caps. Why not try them the next time you order? E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington, Delaware.



EXPLOSIVES

BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY



HANDLE WITH CARE!

THE HANDLE WITH CARE sign is important today. It belongs on every tool and on every piece of equipment in America.

We can't afford a speck of waste, and even the toughest equipment will last longer when cared for properly.

For example, your sturdy, long-lived, dependable Exide Batteries will last even longer if you follow the simple maintenance steps given on this page. The rule of the day is *Handle With Care*. Treat your batteries right... and you help treat the Axis rough.

MAKING BATTERIES LAST HELPS STOP THE AXIS!

- 1 Keep adding approved water at regular intervals. Most local water is safe. Ask us if yours is safe.
- 2 Keep the top of the battery and battery container clean and dry at all times. This will assure maximum protection of the inner parts.
- 3 Keep the battery fully charged—but avoid excessive over-charge. A storage battery will last longer when charged at its proper voltage.

- 4 Record water additions, voltage, and gravity readings. Don't trust your memory. Write down a complete record of your battery's life history. Compare readings.

If you wish more detailed information, or have a special battery problem, don't hesitate to write to Exide. We want you to get the long-life built into every Exide Battery. Ask for booklet Form 1982.

Exide
IRONCLAD
BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

Keep that Extra Margin of Safety!

The extra margin of safety provided by Atlas Manasite Detonators is an advantage at any time . . . but never more so than in these months of all-out production essential to the war effort.

By reducing the chance of mishap through inadvertent mishandling, Atlas Manasite Detonators help to avoid accidents . . . accidents that may cause serious disruptions in man schedules, equipment schedules, and production schedules.

Of course, no detonator is foolproof. But more than 200 million Atlas Manasite Detonators have already been used

—and their extra margin of safety is a big advantage.

Manasite Detonators require no special equipment or change in methods of use. And they cost no more.

Can you afford *not* to use this advance in safer blasting?

MANASITE—Reg. U. S. Pat. Off.

ATLAS MANASITE DETONATORS

for GREATER
SAFETY

ATLAS EXPLOSIVES

"Everything for Blasting"



ATLAS POWDER COMPANY, Wilmington, Del. • Offices in principal cities • Cable Address—Atpowco

Reduce Operating Delays... Increase Tonnages

GOODMAN TRACK MOUNTED CUTTING MACHINES AND LOADERS

Licensed Under the Patents
of E. C. Morgan Nos. 1702261-
1702262-1702122-1702123

With these high capacity machines utilizing the same track at the face and in movement from one working place to another, operating delays are reduced to a minimum and tonnage output is consistently increased.

GOODMAN MANUFACTURING COMPANY

HALSTED STREET AT 48TH • CHICAGO, ILLINOIS

Eimco Loaders Winning the *for* **LEAD** *and*

One of the many fronts at which EIMCO LOADERS are in action is the Tri-State field

In the Tri-State area, one of the world's largest lead-zinc fields, the battle of production is being won through the aid of the Eimco Loader.

All of the largest mining companies in this field, alert to the crying need for more zinc

and lead, have been quick to offset shortages of labor and scarcities of maintenance materials by introducing the EIMCO Mechanical Loader. Hundreds of these machines are now helping to break production records. In the Tri-State field they work round the

Typical Tri-State stope loading setup, showing multiple track which permits working wide stopes. Portable crossover facilitates fast car changes directly behind the loader and also allows loader to move to the adjacent track as "loading out" progresses.



Production Battle **ZINC**



The Loader in action, filling one of the "cans". Average loading time 20-25 seconds. Note that the Loader actually puts all the ore into the "can".

clock—and the loading of cans has jumped five fold. Typical performance for an Eimco Loader is between 150 and 200 cans per shift.

Simple, light, portable cross-over switches designed by the EIMCO Field Engineer with the aid, and full cooperation of the Mining Companies, have done much to increase tonnage.

This is one example of the service given by EIMCO Field Engineers who stay with the machine until they are certain the customer is getting maximum performance.

EIMCO 12B Loaders are built in 18 standard track gauges from 15" to 36" and EIMCO 21 Loaders are built in 20 standard track gauges from 18" to 48".

In practically every lead-zinc mining district in the United States you will find the Eimco Loader doing its part to win the battle of production.

Write us for illustrated bulletins giving complete information about your working conditions or requirements.

THE EIMCO CORPORATION

SALT LAKE CITY, UTAH, U.S.A.

NEW YORK
120 Broadway

CHICAGO,
111 W. Washington St.

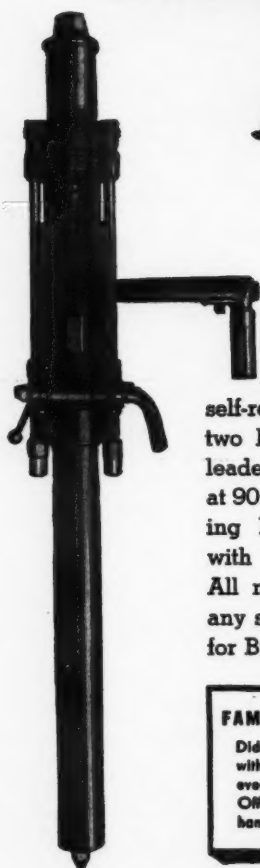
EL PASO
Mills Bldg.

SACRAMENTO
1217 7th St.

3 WAYS TO GET MORE FOOTAGE



1 CLEVELAND DRIFTERS. Forty-one sizes and types, weighing from 125 to 211 lbs., 3", 3½" and 4" bore machines. Hand crank or automatic power feed. Latter has either fixed or sliding cone guide shell. Feeds for 24", 30", or 36" steel change. All models have rigid, strong one-piece guide shell. Ask for Bulletin 130.



2 CLEVELAND STOPPERS are made in three types of self-rotating machines, and in two hand-rotated types. Our leaders are the fast Model S11 at 90 lbs. and the SS22 weighing 120 lbs. Both available with or without trip rotation. All models can be had with any standard size chucks. Ask for Bulletins 127 and 129.

FAMOUS CLEVELAND SERVICE

Did you know that Cleveland ships parts within one day after the order is received, even on week-ends? Twenty-two Branch Offices and over 100 distributors also handle parts for Cleveland Rock Drills.

3 CLEVELAND SINKERS are easy to hold, clean the holes well, deliver the required work rapidly and do not fatigue the operator unduly. The medium weight, 55 lb. H111 Sinkers out-perform many heavier machines. Eight other models weighing from 32 to 83 lbs. There's a Cleveland Sinker for every job from light drilling in shale, etc., to the toughest rock in shaft-sinking jobs. Ask for Bulletin 122.



BRANCH OFFICES

Birmingham Ala.	Dallas, Texas	Philadelphia, Pa.
Berkeley, Calif.	Detroit, Mich.	Pittsburgh, Pa.
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CANADIAN DISTRIBUTORS

Purves E. Ritchie & Son, Ltd., 658 Hornby St., Vancouver, B. C.
Whitehall Machine & Tools, Ltd., Galt, Ontario

THE CLEVELAND ROCK DRILL COMPANY

Subsidiary of The Cleveland Pneumatic Tool Company

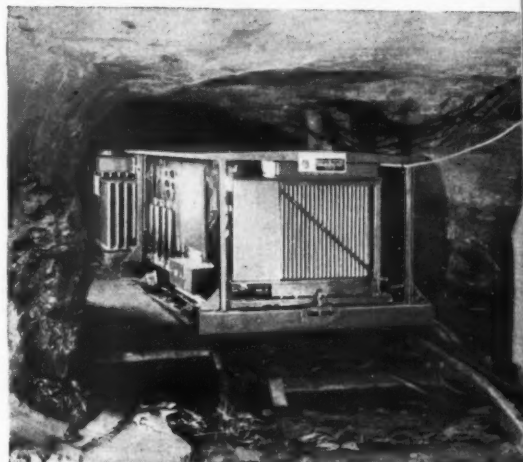
CABLE ADDRESS: "ROCKDRILL"

CLEVELAND, OHIO

LEADERS IN DRILLING EQUIPMENT

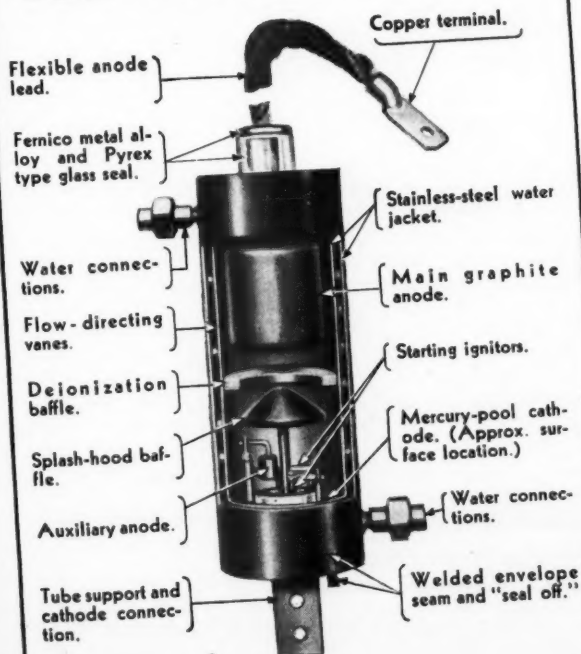
HOW PORTABLE, SEALED-IGNITRON RECTIFIERS REDUCE INVESTMENT *and* MAINTENANCE

THIS high-efficiency, sealed-ignitron conversion equipment is less expensive than any other type of mercury-arc rectifier. In addition the sealed feature eliminates the need of bake-out equipment and evacuating pumps. • Maintenance is simple. No specially trained personnel is required. There are no major rotating parts. Since these ignitrons are permanently evacuated and sealed at the factory, difficult service problems underground are eliminated. • These sealed ignitrons are backed by a three-year warranty. A proved tubeless firing circuit is used. Over-all servicing time is considerably less than for other types of rectifiers.

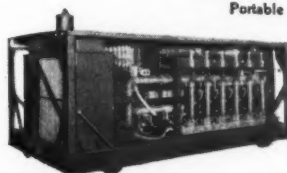


Portable sealed-ignitron-type rectifier underground at load center

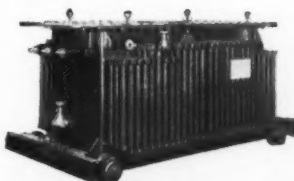
G-E SEALED IGNITRON FOR POWER RECTIFIER



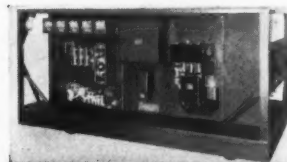
RATINGS FOR MINE SERVICE
150 kw to 500 kw; 275 volts to 600 volts d-c.



Car with rectifier, control, d-c automatic reclosing switchgear, and water-to-air heat exchanger



Car with Pyranol transformer. No vaults needed. Pyranol is General Electric's trade name for a nonflammable, nonsludging cooling and insulating liquid.



Car with automatic reclosing a-c switchgear. (Note that all three cars are roofed over to protect the apparatus.)

Full Voltage at Working Face

This equipment is installed on three cars to provide greater mobility underground. In addition, all parts are completely accessible. The equipment is completely integrated—no interconnections are necessary. You run the cars into position at the load center, connect the a-c supply, and d-c power at full voltage is available. Efficiency is extremely high, light-load and no-load losses are very small. Fewer critical materials are used than in any other type of conversion equipment. At present, delivery schedules are substantially less than those on rotating apparatus. *General Electric, Schenectady, N. Y.*



The Navy "E", for Excellence, has been awarded to 92,780 General Electric employees in six plants manufacturing naval equipment.

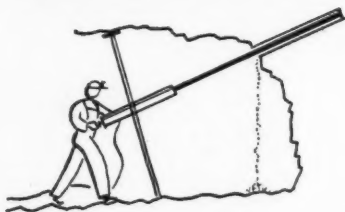
GENERAL  ELECTRIC

GE-15-500

TAMPTITE

A SIMPLE WAY TO GET
MORE METALS FASTER

1



FIRST... Drill your hole.
NO CHANGE in drilling.

2



THEN... Use the new
HERCULES TAMPTITE shell.

3



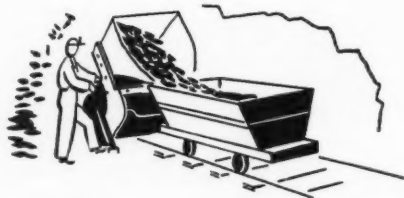
TAMP... in the usual way.

4



PRESTO!... Charge is com-
pacted right where it should be!

5



YOU get better breakage
of ore. FASTER HANDLING.

6

TIME SAVED MEANS



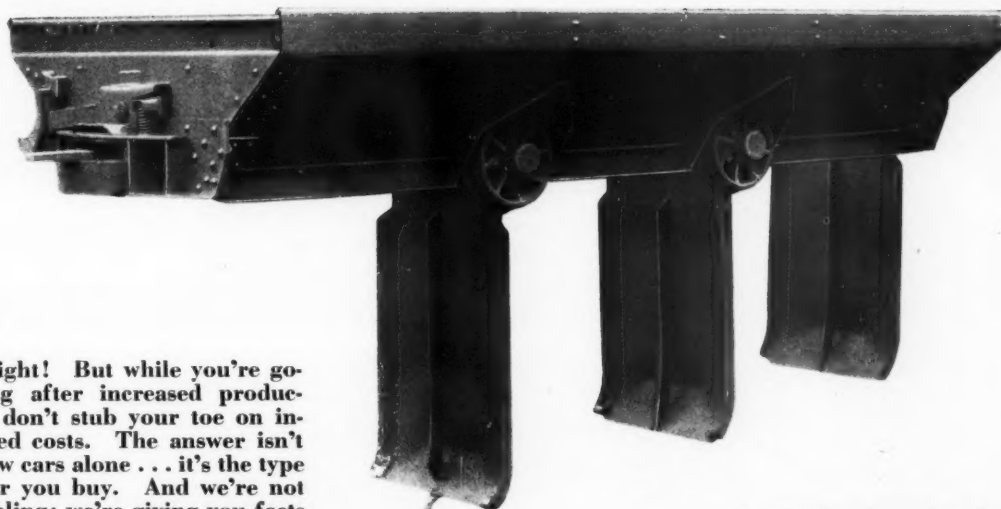
more ore
more metals
more war effort

HERCULES POWDER COMPANY

INCORPORATED

934 KING STREET • WILMINGTON • DELAWARE

A-96



★ Right! But while you're going after increased production, don't stub your toe on increased costs. The answer isn't in new cars alone . . . it's the type of car you buy. And we're not quibbling; we're giving you facts—proven facts—when we say that only S-D 1-2-3 "Automatics" can give you the required production with so few cars to keep up with today's demands of the industry, and at savings you can't afford to pass up. In small mines and large mines, changing over to S-D "Automatics" has effected savings that will, without a doubt, amaze you. Ask us for complete details.

And right here, let us mention the S-D "KNOCKOUT AUTOMATIC" . . . the car with the new S-D "KNOCKOUT" door releasing mechanism. An operator now using 100 of these new cars along with old cars says it is the most

outstanding improvement made since we designed the 1-2-3 door operating arrangement. It's a thrilling sight to watch these cars pass over the dumping bin. This new car has no latch-lever mechanism on outside of car. Nothing projects. Nothing on end of car to be damaged. Construction is simplified. Everything is fool proof. No lever bars to be tripped accidentally. Two separately operating latch hooks are automatically disengaged by the knockout device at the dumping bin. This gives a double safety feature since both hooks must be

released for dropping doors. No man need touch a car at the dumping bin because everything is now completely automatic, safe and fool proof. Write to us now about this amazing improvement in Automatic Cars.

* * *

REMEMBER OUR RENTAL PLAN!

We gladly rent money-saving S-D "Automatics," with option to purchase. The average rental cost over a 15-year period is less than 2¢ per ton of coal hauled. The average savings for you will be many times this small rental fee. You cannot lose! Ask for details.

Sanford-Day Iron Works, KNOXVILLE, TENNESSEE

Mechanize with



Big lumps or little lumps, the Joy Loader handles them all—fast, easily.



Two Joy Shuttle Cars on the 800 level, hauling langbenite ore to the rotary dump at No. 1 shaft of mine of Union Potash & Chemical Co., Carlsbad, N. M. The length of haul is 900 feet to date.

MORE TONNAGE AT LESS

JOY EQUIPMENT



The Human Element is Vital...Even to Rugged Mechanized Equipment

THE maintenance of Joy equipment has been simplified and expedited by skillful designing and "built-to-take-it" fabrication.

Properly trained and educated men are, however, a prime essential to low up-keep and continuous operation—and the rapid mechanization of America's mines makes this a more vital need today than ever before.

We urgently suggest that genuine Joy parts should always be used to get maximum, efficient machine performance.



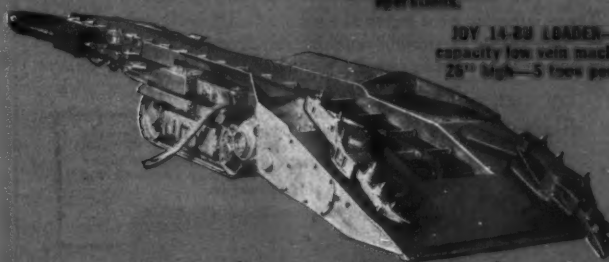
JOY 11-BU LOADER—A heavy duty machine of high capacity, 8-10 tons per minute.



JOY 42" SHUTTLE CAR
6 tons capacity for high seams.



JOY 32" SHUTTLE CAR
3 1/2 ton capacity for low seam operations.



JOY 14-BU LOADER—A high capacity low vein machine—only 28" high—5 tons per minute.



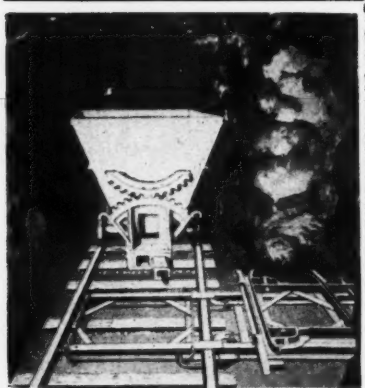
*Consult a
Joy Engineer*

JOY

MANUFACTURING CO.,
FRANKLIN, PA.

COST ... WITH JOY

CANTON CAR TRANSFER



A CAR PASSER

... which permits empty cars (from 3 to 30), one at a time, to pass the loaded cars on a SINGLE TRACK to be spotted under a loader and hauled out in one train!

SAVES TIME and MONEY . . . WILL QUICKLY EARN ITS COST!

Requires no change to existing rails or track. Installed or removed in two minutes! Ordinary car can be moved by one man; heavy car requires two men. Adapted to any track above minimum of 18" track gage and 16 lb. rail.

NARROW GAGE TYPE—18" to 24" Tr. ga. \$400

STANDARD GAGE TYPE—24" to 56" Tr. ga. \$450

HEAVY TYPE—5,000 to 12,000 lb. car. \$600

SEND FOR DESCRIPTIVE BULLETIN

THE AMERICAN MINE DOOR CO.
2063 DUEBER AVE. CANTON, O.

Made of Union-Formed Rope to reduce chances of Accidents

Tuffy

Mining Machine Ropes

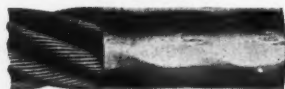
These superior wire ropes are scientifically designed to accommodate safely all mining machine requirements. Accidents are reduced, thus automatically reducing expenses and delays.

TUFFIES CAN TAKE IT!



UNION-CLIPPED • Send for FREE Sample

Metal sheath protects rope end during installation without injury to rope. Write, wire or phone for your free sample.



UNION WIRE ROPE CORPORATION
2144 Manchester Ave. Kansas City, Mo.
Tulsa Houston Chicago Salt Lake City
New Orleans Monahans Portland Ashland, Ky.



UNION

Wire Ropes

T-842

The ULTIMATE LOW COST WIRE ROPE"

SIMPLICITY GYRATING SCREENS

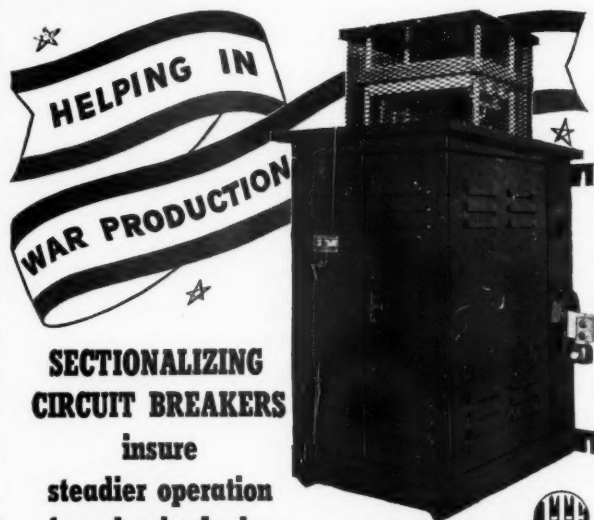
Use the correct basic principle of Positive Eccentric Action, produced by a solid shaft with the counter-balance machined directly thereon, placing the balance directly under the load.

Other Simplicity features are the special rubber corner supports, screen cloth in tension four ways over a doubly crowned screen deck, and sturdy all steel construction with each machine finished in every detail.

Simplicity Gyration Screens are available in sizes from a 2' x 3' up to a 5' x 12' in single shaft assemblies; built in one, two, three, and four decks; as standard inclined types and also as low head types, where desired.

Descriptive Bulletin Available

SIMPLICITY ENGINEERING CO.
DURAND, MICHIGAN



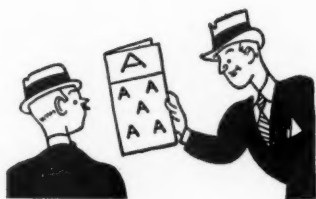
**SECTIONALIZING
CIRCUIT BREAKERS**
insure
steadier operation
of mechanized mines

Type KSC Automatic
Reclosing Circuit Breaker

Raise production; reduce fire hazards; lower maintenance charges; decrease total energy consumption and power demand. Write for a copy of "D-C Circuit Breakers, Switchgear and Protective Relays for Mining Applications", Catalog 2502.

I-T-E **CIRCUIT BREAKER CO.**
PHILADELPHIA, PA.

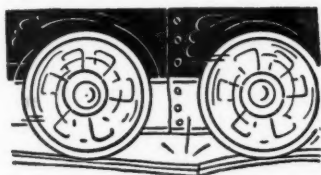
Representatives in Principal Mining Areas



Better than a Priority!

With copper supplies so critical, it's no surprise that motor generators are hard to get. But Edison Batteries can be charged directly from the d-c power line . . . they take their charge just as your mine is best equipped to supply it. Normal fluctuations in voltage present no problem to alkaline batteries, which do not require even a tapered finishing rate.

Easy Maintenance! Maintenance alone produces no coal or ore. When Thomas A. Edison invented the alkaline battery he not only created a power reservoir which does its job better—he created one that requires much less maintenance than any other. One time, maintenance was simply a matter of cost—today it is a vital matter of production, too. Taking care of Edison Alkaline Batteries is not a chore—it is simply a matter of following very easy rules.



Over the Bumps! With everybody from Washington down crying for more production, practical men are pointing out how often haste makes waste. Equipment never took the abuse it is taking today—which is all right if it doesn't hold up the output. Alkaline batteries can take more hard bumps than any other battery ever made. Their construction is proving that when you want strength you want steel.

Cap Lamps! More than 90% of all the electric cap lamps used in mines depend upon alkaline batteries for current.

Edison Storage Battery Division
Thomas A. Edison, Inc.
WEST ORANGE, N. J.

POWER

delivered as ordered



You dig it . . . railroads haul it . . . America needs it! That's the story of today's vital materials. And in mines where Edison Alkaline Batteries power the hauling equipment, foresight is having its reward. Alkaline batteries are standing up under today's gaff. Just as the railroads are finding them so thoroughly dependable in crucial signal work and as auxiliary power equip-

ment on passenger cars, so mining men know today more than ever that the characteristics of the Edison are those best suited to this heavy-duty service. Alkaline batteries get the work out . . . with the least trouble, the least maintenance and the least failure on the job. Where records have been kept this has always been proved.

MINING NEEDS THE DEPENDABILITY OF

Edison

Alkaline BATTERIES

"PRIVATE PLUNK, SIR, IS WHAT MIGHT BE TERMED AN INDIVIDUALIST!"



You and I can thank our lucky stars that the armed forces of this nation *don't* cater to Private Plunks. Individual preferences and prejudices have to go in time of war. If they don't—the *individualist* goes instead!

And so we're asking you—as a customer, vitally interested in obtaining the hanger or clamp you want—but, also, as an American, vitally interested in winning this war—to temper your individual preferences.

Instead of ordering your customary type of hanger,

clamp or expansion bolt—why not glance over the selection below and see if some other type, more commonly used, might do the job almost as well. By standardizing and ordering in convenient shipping quantities, you'll enable us to streamline our manufacturing and stocking processes and you'll simplify your own installation, stocking and bookkeeping problems. And together, we'll be doing a better job for those other 130,000,000 soldiers, sailors, housewives, farmers, machinists, laborers and stenographers that make up America!

STANDARDIZE FOR VICTORY—We Recommend These O-B Products



Universal-2 Hanger



Type K-3 Hanger



Bulldog Trolley Clamp



Bulldog Feeder Sling

Type A-3
Expansion Bolt



Type PC Trolley Frog

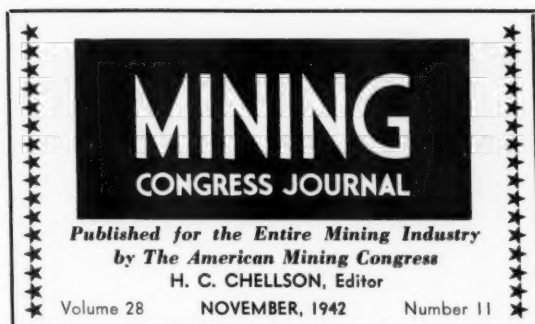


Universal Trolley Wire Splicer

2297-M



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How Hard Are We Working?

OUTSTANDING in the war effort, not only in the mining industry but throughout our country and the lands of our worthy Allies, is the problem of greater production to win the war in the shortest possible time. Fulfillment of this important objective is becoming more and more difficult in our Nation when an obvious bottleneck of manpower-hours is permitted to continue.

The mine operator, for instance, constantly explores ways and means to increase production. He wants more men but they are hard to get. He is training women to take over certain work. He gropes through numerous involved difficulties and strains to push aside Government red tape. He is frustrated, in fact, he is sore as hell because he believes unnecessary hindrances prevent him from achieving greater production.

As he seriously thinks about our Allies, he realizes they too have a similar manpower shortage. He reads that in Europe millions of women are being put to work, and, as he investigates further into the labor problem of Russia and England, he gets a terrible jolt. He finds the solution of the labor problem was so obviously simple. In Russia, workers have 66 hours as a standard work-week; in Britain, it is 56 hours, whereas here, the standard work-week is set by law at 40 hours and the average work-week including overtime is only 43 hours. Those nations have meshed their manpower capacity to the maximum and are toiling all-out to build a machine to crush the Axis.

The enemy is working its people between 65 and 70 hours per week, and so far they are winning the war. People in high places who know the strength of the enemy tell us they are stronger than we had thought. They remind us we are in a total war and insist, plead and urge us to get tough and work longer or else we will lose our cherished way of life. In spite of all this, and the blood, sweat and tears of our Allies, there are so-called leaders among the labor groups who maintain that repeal of the 40-hour work-week would be a threat to the success of our war effort!

The American farmer, miner, the butcher, the baker and candlestick maker are tough and are getting tougher. They know what happened to France and why it fell and they are learning many things about this war; and one of them is, that in the eyes of the enemy, Uncle Sam will soon become a pantywaist because he permits the Government to coddle labor with a 40-hour work-week, while our

Allies are begging us for supplies and more supplies for that second front.

The common denominator of American labor—the worker—is more than willing to work 56 or more hours a week so he and his family may be free and his sons may achieve victory and return home. Our Government must answer the rising demand of its people that provisions be made so the wage-hour law will be shelved for the duration. Thus will our total effort be a better oiled and faster working gear, which will mesh effectively in the war machine of our Allies—one tremendous steamroller to flatten the Axis.

The Northwest Must Have More Coal

PRODUCTION of coal must increase in spite of the large volume of stocks that exist above ground at this time. Offhand, the situation may appear comfortable but it is not the true picture when one considers our total war effort. The eastern and central states provide virtually 95 percent of the bituminous coal of the United States and it is in these parts of the nation that the industrial and domestic requirements of bituminous and anthracite are being met without too much difficulty—although even here the problems of manpower, transportation and equipment could easily be critical. In the rapidly growing Northwest, however, the situation is serious.

The war program has thrust considerable industrial expansion upon the West Coast states, to supply airplanes, ships and other munitions from Kiska to China, Australia, and the strategic Solomons. These demands are requiring more coal than the western states are now able to supply, and thus the nation's coal situation is far from assured.

High wages have lured thousands of coal miners to West Coast war plants and Government projects, and created a serious labor shortage. This ominous situation is further depressed by the excessive record of voluntary absenteeism at many of the western coal mines. At one property, loss of more than 3,000 man-shifts per month is being experienced. Such an incredible "don't give a damn" attitude threatens our soldiers in the Aleutians with a very unhappy winter and is comparable to giving Hirohito and Hitler an option on unmined coal with the compliments of those guilty of inexcusable absenteeism. The growing industrial Pacific Northwest faces a coal famine this winter unless quick Government action provides the coal mines with more manpower.

So far, working hours in some western mines have been increased by agreement with the coal miners. Prices of lignite are being raised to increase output of this type of fuel, but the coal situation must be further relieved by additional manpower. Among the thousands of men in uniform being interviewed in western military camps to return to metal mining, many are found to be coal miners. What's wrong with using these experienced coal miners in the coal mines? England faced a similar situation and recalled about 11,000 coal miners only after her coal crisis got out of hand. Don't let our obvious situation in the Northwest become another chapter in that book "Too Little, Too Late."

Mechanical Loaders Help Solve A War Problem

Shortage of manpower in the Tri-State Zinc Mining District has given mechanical loaders an opportunity to demonstrate their ability to load ore speedily in wide faces. About 100 loaders expected to be in operation soon

By W. F. NETZEBAND

American Zinc, Lead & Smelting Co.
Joplin, Mo.

MINING in the Tri-State Zinc-Lead District has been seriously hampered in the recent past by the lack of skilled shovelers and this situation has been aggravated by the gradual lowering tenor of the ores mined which necessitates the handling of more tons of ore to produce the equivalent quantity of concentrates. During normal times an average shoveler would load forty 1,650-lb. cans in an 8-hr. shift and 100-can shovelers were not uncommon. Practically all loading was done on a piece-work basis, except for cleanup or some development work. Under this arrangement shovelers were usually the highest paid labor in the mines and proud of their record.

The majority of shovelers were men under 35 years of age and therefore subject to the Selective Service Act. These men were also habitually moving from one job to another and many drifted into defense work and never returned to the district. Some new men have come into the district, but being unused to the arduous labor of shoveling they could not make the high wages which have become the order of the day and they have refused to accept jobs as shovelers on a piece-work basis. As shift men they have averaged 20 to 30 cans per day and most of them require a Bruno hand or helper to keep the ore rolled down to them from the high stopes. Under these conditions nearly twice

as many shovelers would be required to produce the same tonnage of ore and with lower grade ore, more tons of ore are required to maintain the concentrate production of the district. These additional men are not available in the numbers required, so the only other solution is mechanization.

For a number of years scraper-loading has been practiced in some mines, but this type of mechanization is adaptable only under certain favorable conditions and could not be more universally applied. Shovel-loaders of the type developed for narrow drifts were tried late in 1941 and, after a period of experimentation, have been found to be at least a partial solution of the problem. It is estimated that there are about 70 such shovels in the district and the number will reach 100 or more in the near future.

A special arrangement of the track permits a steady supply of cans for this Eimco loading machine

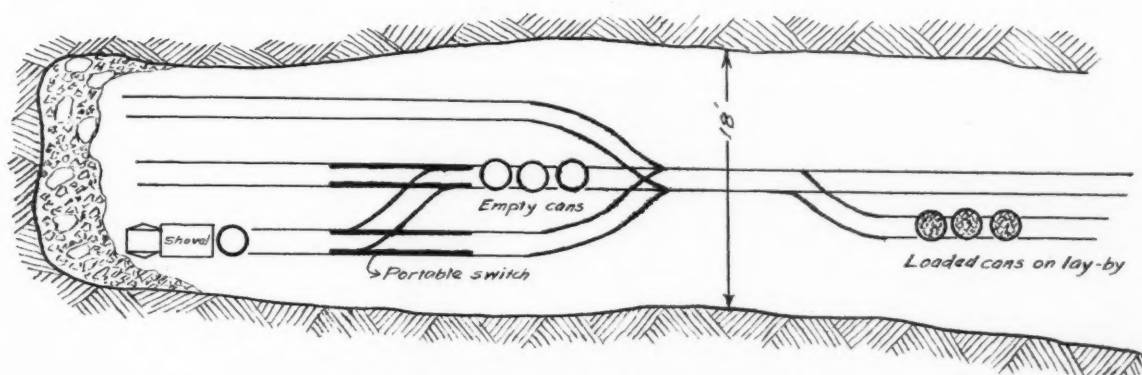
Loaders Dump Broken Ore into Large Cans

There are three makes of shovels in general use: the Eimco-Findlay, Gardner-Denver and Sullivan. These shovels are operated on tracks spaced on 6-ft. centers across the face. Two to three or more tracks are laid across the face, depending on the width of the face. Thirty-five lb. rail is used in the section on which the shovel operates and the rest of the trackage is usually 18-lb. rail. Track gauge is 16 to 24 in. The shovels are built for 18 to 30 in. track gauge, so that where the 16 in. gauge is in use the shovels must be altered to fit the smaller gauge. The 1,650-lb. cans (32 in. diameter by 32 in. high) are mounted on low cars for transportation to the hoisting shaft. Some mines use a 1,250-lb. can (32 in. diameter by 30 in. high) for hand shoveling.





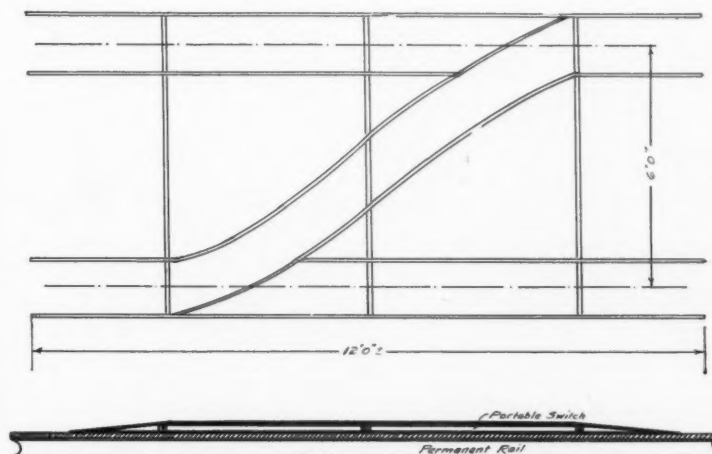
This wide operating face has a large tonnage of broken ore to be moved by the mechanical loader



Sketch of the track layout used in a face that is about 18 ft. wide

On the right is a sketch of the pre-fabricated switch

Because this type of shovel can only load a car or can spotted directly behind it, the bottleneck in its use is the time delay in removing the loaded can and setting the empty in place for loading. This problem has been solved by the use of a prefabricated switch which is laid over the regular rails and permits the rapid movement of the empty can into place for loading. This switch is shown in the accompanying sketch. The use of this switch has speeded up the loading operation, but there is still a transportation delay which definitely limits the number of cans that can be loaded





In the Rialto mine these two Gardner-Denver, Model GD 9H mine car loaders are used

in a shift. Some operators are lacking sufficient rolling stock to keep the shovel adequately supplied with cans and the shovel is often idle, waiting the return of empties brought from the shaft.

The shovels are all powered by air motors which have been developed to a high degree of efficiency. Most mines have an excess capacity of compressed air so that the use of the shovels has not required the installation of additional compressors, a very scarce piece of equipment in the district these days.

Two Men Do the Equivalent of Five Men Hand Loading

The loading operation requires two men, a shovel operator and helper. The helper spots the cans and assists the operator whenever necessary. These two men with the shovel load from 100 to 120 tons (125 to 150 cans of 1,650-lb. capacity) of ore in an 8-hr. shift. They load the equivalent of five men loading by hand. The maximum tonnage loaded has been about 160 tons per shift under ideal operating conditions.

The loading operation is as follows: 1—the can is filled and the shovel moves the loaded can back out of the way, 2—as the shovel returns to loading position, the helper brings in the empty can over the movable switch from the adjoining track and spots it behind the shovel, 3—while the shovel is filling the can the helper moves the previously loaded can to the lay-by or siding and connects it to the other loads for transportation to the hoisting shaft by locomotive or mule, 4—the helper then moves another empty into position ready to spot behind the shovel.

The shovel will not clean up a drift from wall to wall so it is necessary to clean up a drift by hand labor before the drillers set up for the next round. Because of its mobility, the shovel can load out two or more drifts in a shift, depending on the tonnage broken. Boulders too large for a shovel to handle are rolled to one side, jackhammered and blasted at the end of the shift.

The use of the shovel-loaders is not the perfect solution of the loading problem in the district, but at least it is keeping the ore moving from the face to the mill. It is reported that the unit labor costs are slightly more than half of piece-work hand shoveling, but when depreciation, air consumption, repairs and supplies are added, the unit costs are about the same.

The author wishes to express his appreciation of the assistance extended in gathering of the data by operators and manufacturers' representatives in the district.



A double track entry wherever possible speeds the loading operations

Making a Mine Dump Give to the War Effort

THE DOUGLAS MINE, on upper Pine Creek, in the Coeur d'Alene mining district of northern Idaho, is predominantly zinc in the character of its ore, though containing much lower values in lead and some silver, but little more than a trace of gold.

Since the ore is very refractory, carrying some oxides apparently in the form of Franklinite or some other ore of similar character, as is evident from the magnetic iron and other oxides as a constituent of the ore, it has been very difficult to make a separation of the zinc from the lead in the ore by the usual selective flotation processes. In fact, an engineer of one of the large mining companies formerly operating this mine stated that his company had spent \$100,000 in testing out the Douglas zinc ores only to find that they could not make a satisfactory separation of the zinc from the lead in the ore, so they gave up and abandoned the mine.

In our operation of two large zinc-lead mine dumps on this property we had no better success than the former operating company, so we threw it all into one zinc concentrate carrying 36.5 to 43.5 percent zinc, 10.60 to 13.50 percent lead, and 6.40 to 8.70 oz. in silver per ton of concentrate, and got what we could out of the product.

The concentrate carried from 7.50 to 13 percent iron on which the zinc smelter exacted a penalty of 30 cents per unit, hence it was desirable to

The author recounts his experiences and presents some costs that may aid others in undertaking similar work. Metals Reserve saved the undertaking with premium payments for lead and zinc. Sampling and assaying must be well done.

By JESSE R. VILLARS

Cedar City
Utah

keep the iron content as low as possible in the concentrate.

It was found that in throwing down the iron an excessive amount of zinc was also thrown down, and in saving all the zinc possible an excessive amount of iron was also retained in the concentrate. This caused our mill man a lot of bad moments, with the final result that he arrived at a point that seemed to balance the loss of the zinc with the penalty on the iron and worked out the situation as economically as possible.

In the preliminary assays of these two dumps, the lower dump along the highway varied from 1.7 to 4.1 percent lead and from 4.4 to 5.7 percent zinc, while the upper dump lying up the steep mountain side gave assays of 3.9 to 4.1 percent lead and from

9.2 to 11.0 percent zinc. However, in the deeper pits ahead of the power shovel assays of 2 percent lead and 4 to 5.5 percent zinc seemed to prevail in the upper dump, while in the lower dump the assays from the heart of the pits varied from 1.4 to 2 percent lead and from 3.4 to 4.8 percent zinc.

The operating contract price at first was \$1.00 per ton of the ore for hauling 20 miles to a custom mill on Moon Creek, and \$2 per ton for milling the ore, then 65 cents per ton of concentrates for hauling back to the smelter, a distance of about 10 miles. However, it was found that much of the time the net smelter returns were insufficient to pay the cost of the hauling and milling, so that inroads had to be made on the over-quota premium



A large copper dump

TABLE I
DATA TAKEN FROM SMELTER SETTLEMENT SHEETS, AND OPERATORS' EXPENSE RECORDS

1942	Concentrate shipments	Tons shipped	Assays zinc, %	Assays lead, %	Assays silver, oz.	Total zinc, lb.	Total lead, lb.	Total silver, oz.	Gross value	Net smelter returns	15% royalty	Hauling & milling to operators	Net bal to operators	General expenses
Feb. 12	Car lot DG-1	27,0285	37.00	13.60	800	20,001	7,352	21,623	\$2,280.67	\$725.36	\$108.80	\$616.56	\$0,000.00	
Feb. 21	Car lot DG-2	34,3200	41.90	10.70	710	28,760	7,344	24,367	3,022.15	1,151.12	172.07	\$78.45	100.00	
Feb. 28	Car lot DG-3	37,3175	43.20	11.50	780	32,242	8,583	29,108	3,423.45	1,391.06	208.66	921.55	260.85	\$101.83
February	production	98,0660	tons concts. shipped =			81,003	23,279	75,008	8,726.27	3,267.54	490.13	2,416.56	369.85	
Mar. 6	Car lot DG-4	43,0585	41.60	11.10	750	35,825	9,559	32,294	3,804.98	1,454.00	218.10	900.00	335.90	
Mar. 10	Car lot DG-5	39,0210	41.50	11.10	760	32,387	8,663	29,656	3,444.48	1,314.80	197.22	899.34	0.00	
Mar. 14	Car lot DG-6	38,1565	38.60	10.60	750	29,457	8,089	28,617	3,158.10	1,058.05	158.71	900.66	9.38	
Mar. 20	Car lot DG-7	40,1095	38.20	10.50	750	30,644	8,423	30,082	3,288.08	1,070.64	160.60	900.00	221.18	
Mar. 28	Car lot DG-8	49,8030	37.70	11.30	770	37,551	11,255	38,348	4,100.37	1,319.03	197.85	900.00	117.81	
Mar. 31	Car lot DG-9	39,5725	39.50	11.60	780	31,262	9,181	30,867	3,393.89	1,197.42	179.61	900.00	901.85	344.96
March	production	249,7210	tons concts. shipped =			197,126	55,170	189,864	21,189.94	7,413.94	1,112.09	5,400.00	0.00	
Apr. 17	Car lot DG-10	23,6920	41.30	11.80	860	19,570	5,591	20,375	2,121.85	818.84	122.83	696.01	85.50	
Apr. 21	Car lot DG-11	29,0665	43.50	13.40	870	25,288	7,790	25,288	2,771.21	1,165.47	174.82	905.15	85.50	205.09
April	production	52,7585	tons concts. shipped =			44,858	13,381	45,063	4,893.06	1,984.31	297.65	1,601.16	0.00	
May 7	Car lot DG-12	40,0065	39.10	12.70	820	31,285	10,162	32,805	3,473.23	1,214.81	182.22	1,032.59	0.00	
May 11	Car lot DG-13	21,9210	38.10	12.50	790	16,704	5,480	17,318	1,856.59	615.48	92.32	523.16	0.00	
May 20	Car lot DG-14	40,7515	36.50	10.20	640	29,749	8,313	26,081	3,178.84	901.76	135.26	766.50	0.00	
May 23	Car lot DG-15	20,6960	37.00	12.00	720	15,315	4,967	14,901	1,691.59	521.34	78.20	443.14	0.00	312.90
May	production	123,3750	tons concts. shipped =			93,053	28,922	91,105	10,200.25	3,253.39	488.00	2,765.39	0.00	
June 12	Car lot DG-16	39,8365	39.30	12.90	720	31,311	10,278	28,682	3,453.80	1,214.52	182.18	1,032.34	0.00	
June 19	Car lot DG-17	29,5635	38.00	12.70	770	22,468	7,509	22,764	2,502.47	824.90	123.74	701.16	0.00	
June 29	Car lot DG-18	31,8215	37.60	13.10	790	23,930	8,337	25,139	2,693.68	872.03	130.80	741.23	0.00	
June	production	101,2215	tons concts. shipped =			77,709	26,124	76,585	7,644.95	2,911.45	436.72	2,474.73	0.00	42.10
July 13	Car lot DG-19	48,1865	37.30	13.30	850	35,947	12,818	40,958	4,088.07	1,326.29	198.94	1,127.35	0.00	
July 27	Car lot DG-20	45,5945	38.70	13.50	800	35,290	12,311	36,476	3,969.26	1,368.76	206.31	1,163.45	0.00	
July	production	93,7810	tons concts. shipped =			71,237	25,129	77,434	8,037.33	2,695.05	404.25	2,290.85	0.00	
July	production	719,5230	tons concts. shipped =			564,986	172,005	555,749	\$60,716.26	\$21,525.68	\$3,228.84	\$16,948.64	\$1,348.20	\$1,006.88

payments to supply the deficiency and to cover the general expenses and other matters.

The upper dump carried a much larger proportion of the lighter and coarser quartzite gangue material, hence was much more easily milled than the lower dump, which contained a much larger percentage of small to fine black slate carrying considerable magnetic iron.

The entire operation was carried on under contract for both hauling and milling. Mr. E. G. Smith of Wallace, Idaho, has a number of 8 to 10-ton dump trucks, a half yard power shovel, and has a lease on the Silver Crescent mill on Moon Creek where he did the milling on a custom milling arrangement.

About the middle of April, \$1,100 had to be taken from the first premium payment to settle up the unpaid balance due for hauling and milling. During the months of May, June and July, when the lower grade ores from the lower dump were being hauled and milled, it was necessary to turn over all the net smelter returns to Mr. Smith to apply on the hauling and milling charges. In addition it was necessary to turn over to him a portion of the premium payments in order to have him haul and mill low-grade ore that would not otherwise pay the costs of handling.

In February, March and April approximately 3,400 tons of the higher grade ore was hauled from the upper dump, the ratio of concentration on this portion being about 8.5 tons of ore into 1 ton of concentrates. In the latter part of the operation the ratio was considerably greater, though some of the data needed to complete this calculation are not now at hand.

In tabulation sheet No. 1, showing details of the concentrate shipments, it will be noted that the grade of the concentrates does not vary a great deal, the greatest variation being in the zinc which runs from 36.5 to 43.5 percent, the lead from 10.50 to 13.50 percent, and the silver from 6.40 to 8.70 oz. per ton.

The irregularity of operation, as shown on the tabulation sheet, was due to the fact that the custom mill had to take care of other milling contracts, and in such cases we had to wait our turn.

During the late winter months when the weather was cold and freezing, we often had to use powder to blast the ore on the steep mountain side so it could be worked down into the pit for the shovel. We also had to make wide, long plank chutes and place them up the steep mountain side so the ore would slide down into the pit. However, considerable work had to be done by hand with shovel, rake and other means to get the damp or frozen ore down into the pit.

It will be noted in tabulation sheet

TABLE II
DOUGLAS MINE DUMP OPERATION—OVER QUOTA PREMIUM PAYMENTS

1942	Total Production zinc, lb.	lead, lb.	Payable zinc, lb. lead, lb.		Total premium	15% royalty to owners	Hauling & milling	Net balance to operators
February	81,003	23,279	64,802	13,887	\$2,163.95	\$324.59	\$0.00	\$1,839.36
March	197,126	55,170	157,701	32,149	5,220.88	783.13	0.00	4,437.75
April	44,858	13,381	35,886	8,172	1,211.60	181.74	0.00	1,029.86
May	93,053	28,922	74,442	15,216	2,465.60	369.84	493.12	1,602.64 (a)
June	77,709	26,124	62,167	18,041	2,205.72	330.86	441.14	1,433.72 (a)
July (completed)	71,237	25,129	56,990	15,602	1,996.28	299.44	399.26	1,297.58 (a)
Totals	564,986	172,005	451,988	103,067	\$15,264.03	\$2,289.60	\$1,333.52 Less	\$11,640.91 1,100.00 (b)

\$10,540.91

(a) On account of the extra low grade of the ore in the last dump milled, part of the premium payments on the last three months' production had to be used for hauling and milling costs.
(b) To settle unpaid balance hauling and milling account April 16, 1942.

CONDENSED STATEMENT—DOUGLAS MINE DUMP OPERATION—JANUARY 28 TO JULY 27, 1942

Net smelter returns from concentrate shipments	\$21,525.68
Over quota premium payments on payable zinc and lead	15,264.03
Total returns	\$36,789.71
Less expenses as follows:	
15 percent royalty on net smelter returns	\$3,228.84
15 percent royalty on premium payments	2,289.60
Hauling and milling (on contract):	
Paid out of net smelter returns	16,948.64
Paid out of premium payments	2,433.52
Manager's services (on contract)	1,839.48
General expenses—lumber, supplies, etc.	1,006.88
Total expenses	\$27,746.96
Balance net to operators	\$9,042.75
	Less 125.00 Advances
	\$8,917.75
	Net operating profit

No. 1 that the smelter returns from each carload shipment varies from 30 to 35 percent of the gross value of the ore as given in the smelter settlement sheet. Since the settlement for lead ore and concentrates usually runs from 60 to 65 percent of the gross value of the ore, some explanation may be due as to why the difference. Since I do not know, I would be glad to have someone give an explanation who is familiar with the subject.

In tabulation sheet No. 2 showing the over quota premium payments, it will be seen that the payable zinc on which the premium was paid is 80 percent of the total zinc production, whereas the payable lead in this zinc concentrate is but 60 percent of the total lead in the concentrate. Since it is hardly possible that the 20 percent of the lead should be a total loss in smelting, one wonders why the difference. However, since this arrangement seemed to be a part of the government regulations regarding the premium payments, we accepted it without raising any question.

It will also be noted in sheet No. 2 that it took \$2,433.52 of the premium payments to settle up the total charges for hauling and milling, \$2,289.60 more of the premium payment to the Douglas Mining Co. for royalties ex-

acted on these premium payments, besides some additional to cover part of the general expenses of the operation.

In the condensed statement on sheet No. 2, it will be noted that in this entire operation all of the net smelter returns in addition to \$6,346.28 out of the premium payments had to be used in paying royalties, hauling and milling charges, general expenses, and

manager's services, and repaying a small amount of advances, leaving something less than 60 percent of the premium payments as the total net operating profit of the operation.

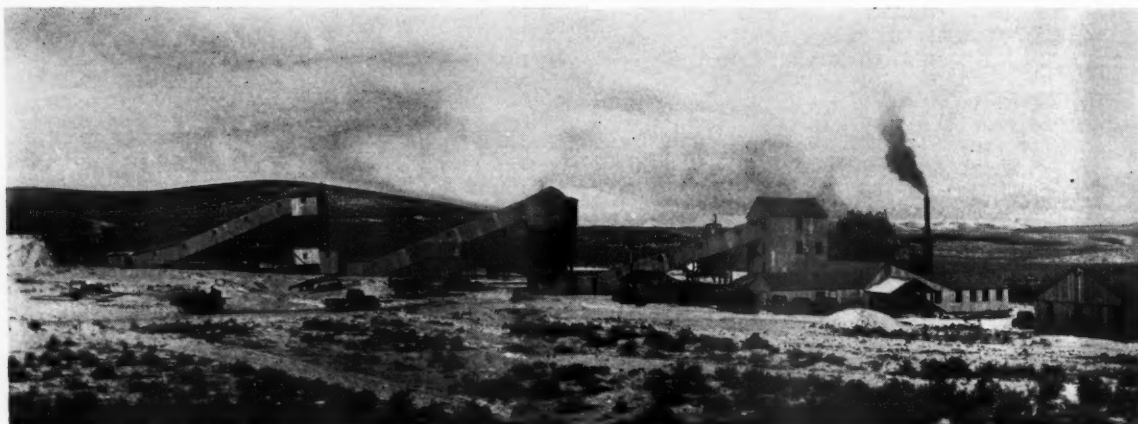
Under such conditions strictly zinc operations are not very attractive without lead that can be separated from the zinc, besides enough silver and gold to add to the returns to help out in the costs of operation.

WAR MEMO ★

To keep the Axis from our shores,
keep after that "10% of gross payroll"
goal in War Bonds, through the
Payroll Savings Plan!



Buy War Savings Bonds



Ore is dumped at the extreme left and is crushed before traveling over three conveyor belt systems to the furnace building

Mining Quicksilver in Nevada

THE CORDERO Mining Company of Nevada, affiliated with Horse Heaven Mines, Inc., a quicksilver producer in Oregon, was formed in March, 1941, for the development of the McDermitt Claims, located 12 miles west and south of McDermitt, Nev. Development and construction work was started immediately thereafter. The first foundations were poured in April and the furnace plant started operations in August of the same year.

The ore occurrences are similar in many respects to the nearby mercury deposits at Opalite and Bretz, located respectively some 20 and 10 miles away and operated by the Bradley Mining Company. In minor details the Cordero deposits differ somewhat. Some ore occurs in opalitic material and in some instances in lake beds, while other parts of the deposit are found in altered volcanics. Most of the mining to date has been near the surface, and whether the ore will continue in depth to any considerable extent is still not determined.

Mining is carried on with a P. & H. ½-cu.-yd. gasoline-powered shovel in open pits. Various pits have been opened extending for some 1,500 ft. along the strike. The ore varies in grade from 2 or 3 lb. in some of the harder opalite, up to 30 to 50 lb. per ton in some of the softer material. The high-grade ore is, as usual in cinnabar deposits, quite spotty. Drilling for blasting in the pits is done with an Ingersoll-Rand wagon drill and the depths of holes vary from 10 to 20 ft. The ore is transported from the pits to the storage dump or to the grizzly bin in three Ford trucks and one Chevrolet carrying about 3½ to 4 tons to the load. The trucks dump into a 20-ton bin through a 9-in. grizzly. The ore passes over a shak-

Mercury ore is mined at the surface and the quicksilver recovered in a modern multiple hearth furnace. Three diesel units supply power

By S. H. WILLISTON

Vice President
Cordero Mining Company

ing feeder to a 24-in. wide conveyor belt inclining upward at 18 degrees, dumping into a 150-ton coarse-ore bin. Inasmuch as the surface of the ground is virtually level a considerable amount of lifting of material is required.

Standard belt conveyors, con-

structed by Stephens-Adamson Company, were installed rather than other types in view of priority difficulties. Sorting stations were placed along the 24-in. belt with chutes connected to a waste bin. When the price of quicksilver is high, it is impractical to resort to picking on this belt, since



This building contains the Nichols-Herreshoff furnace

ore containing values over 2 lb. to the ton will carry furnacing expense at current market prices. When prices decline, these sorting stations can be used more extensively to sort out waste.

At the bottom of the 150-ton coarse-ore bin is a shaking screen and feeder that feeds ore less than 1 in. directly onto a 12-in. conveyor belt, and the over-size to a 9 x 21 in. Wheeling crusher, and thence onto the fines already deposited on the conveyor belt. This conveyor delivers crushed ore to a 250-ton steel fine-ore bin. At the base of the fine-ore bin the ore is fed through a Harding weigh-tometer feeder onto another 12-in. conveyor, and goes from there to the furnace proper.

The furnace itself is a 14 ft. 3 in. diameter, 13-hearth Nichols-Herreshoff furnace, manufactured by the Pacific Foundry Company at San Francisco. It is a 3-zone furnace of new design and the only one at present used in the quicksilver industry; although the standard Herreshoff single zone is widely used in quicksilver recovery. In this particular installation there are three distinct zones in the furnace, the top drying zone utilizing waste heat to dry and pre-heat the ore, the second heating zone where the ore is brought up to 1,400 deg. temperature and allowed to soak, and the third, or cooling zone, where the ore is cooled from approximately 1,000 down to 350 deg. before the burnt and cooled ore is delivered to a rubber conveyor belt carrying it to the waste pile.

Ore is Rabbled Thoroughly in the Furnace

Between each zone of the furnace there is a seal preventing the flow of gas between various zones but permitting the flow of ore. At the top of the furnace, where the rock is delivered to the furnace proper from the conveyor belt, there is an automatic flap gate, built on the property, which delivers the cold damp ore to the top hearth, where the rabble arms on the central shaft rabble the ore outward to the outer circumference of the hearth, where it falls through openings to the next hearth below. Here it is again rabbled inward to the central opening and drops to No. 2 hearth and then again outward through the gas seal, then inward and so on down through the furnace. At the base of the drying zone there is another seal whose rate of discharge can be controlled from the outside of the furnace. This feeds into the top of the heating zone.

The oil burners are located in the central zone, consisting of four heating and two soaking hearth units. The temperature in this zone increases from about 180 deg. rock temperature on the top hearth to 1,400 deg. rock temperature on the

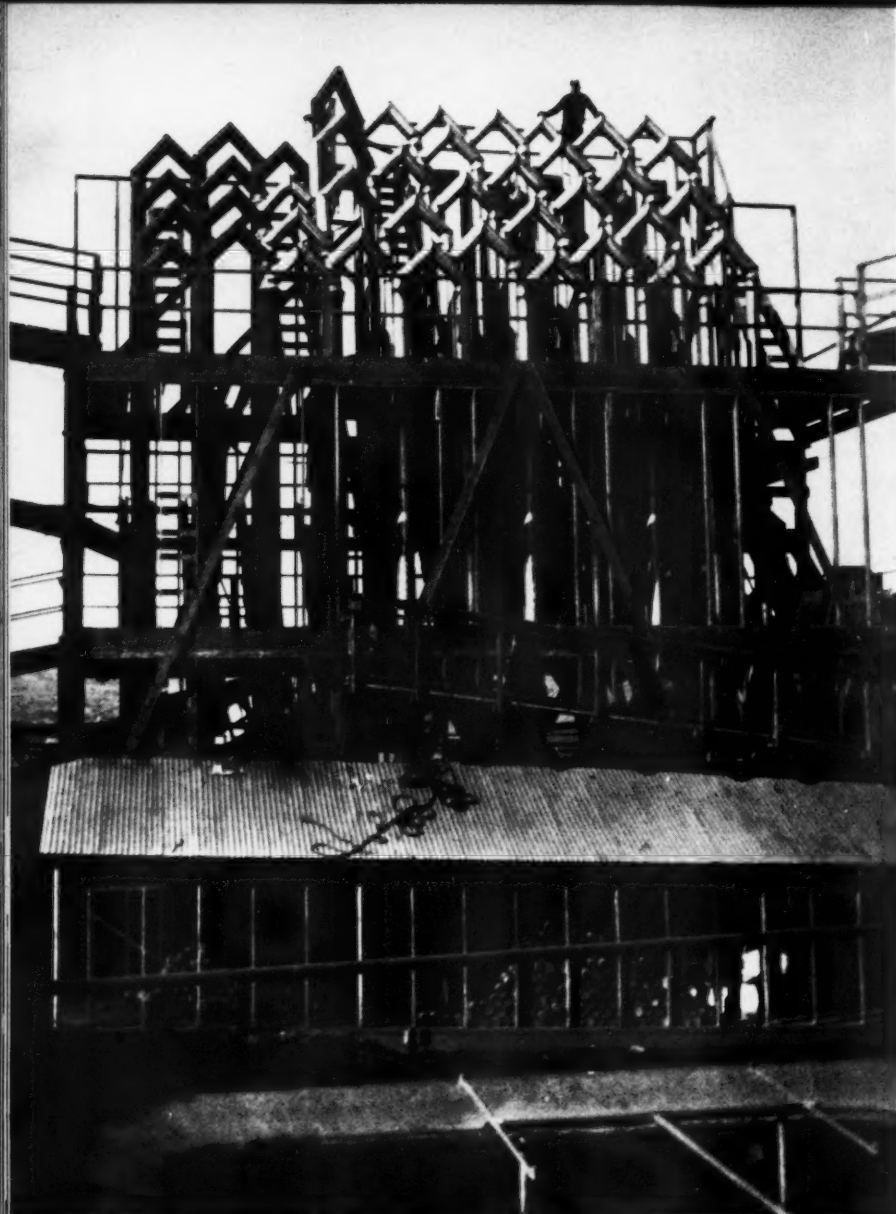
bottom burner hearth, and then decreases to about 1,000 deg. on the bottom soaking hearth, where it passes through another outside controlled feed seal to the cooling hearths. On the cooling hearths cold air is jetted into the ore and large quantities of cool air are pulled over the ore, and this air, after heating, is delivered to the drying hearth on top of the furnace. Under normal conditions the rock leaves the furnace at temperatures from 200 to 300 deg., depending upon rate of feed and amount of air transfer. When the temperature is high a light water spray is put on the ore near the delivery chute from the bottom hearth, so the rock that falls onto a calcine U. S. Rubber conveyor belt does not exceed 350 deg.

At the present time most of the burnt calcine is used for road material and spread about the plant to keep down the dust in summer and mud in winter. A double-drum hoist and scraper disposes of the remainder.

The great difference in this furnace from ordinary multiple hearth type furnaces is in the utilization of the waste heat from the burnt ore to dry and pre-heat the furnace feed. Moisture content under average conditions in the ore going to the furnace runs around 12 percent in summer and up to 20 percent in winter. By utilizing the waste heat to dry this ore to down around 3 to 6 percent moisture, a considerable saving is made in fuel consumption. The plant has not been in operation long enough to give sufficient data, under different

A 1/2-cu.-yd. P & H gasoline powered shovel is used to load ore into the trucks





The stainless steel condenser system

weather conditions, as to actual fuel saving, but comparing it with a straight run Herreshoff operated by the Horse Heaven Mines on ore with similar moisture and volatiles in Oregon, it would seem to indicate that the fuel saving is about 40 percent.

Another advantage in this type of furnace is that, since the waste heat is largely removed from the burnt ore, the ore leaves the furnace at sufficiently low temperatures so that it can be handled by a rubber conveyor belt, whereas the typical hot discharge ordinarily means additional manpower in the tramping of rock at temperatures from 700 to 1,000 deg.

The airflow through the furnace is shown in Fig. 1. Cold air is forced upward through the central column and cold air is discharged through

holes in the rabble arms on the hearths of the lower cooling zone, and also the bottom hearth of the soaking zone. This cold air at the bottom hearth of the soaking zone is heated by contact with the hot ore, and is used as secondary hot air supply for combustion in the upper part of the heating zone. In addition to the cold air jetted onto the ore in the upper hearths of the cooling zone, air is brought in at the side of the furnace at the lowest hearth through airports and travels back and forth over the hot ore. All this pre-heated air is taken off through four ducts in the furnace wall to the lowest of the drying hearths and travels back and forth over the drying hearths, then goes to an exhaust fan.

Additional air forced up through the central column shaft goes through

the air-cooled rabble arms in the central heating zone and is exhausted through holes in the rabble arms of the top drying zone directly into the cool damp ore. The temperature of this air is about 400 deg. The air through the furnace ducts from the lower cooling zone is slightly over 250 deg. Both these flows of air, after traveling back and forth over the upper drying hearths, goes through the exhaust fan and from there to a dust collector and is exhausted to atmosphere. Any dust picked up by this air-flow is fed back to the furnace by a small screw-fed conveyor.

Gas from the heating zone of the furnace carrying the mercury vapor is taken out on the hearth immediately below the drier section of the furnace and passes through a No. 11 American Blower dust collector, and thence to the condensers.

Condenser System is Chiefly of Stainless Steel

The condenser system in this plant is of particular interest since it is one of the few stainless-steel condenser systems at present utilized in the industry. The condenser set-up contains 88 9-in. condenser tubes. There are four parallel banks interconnected at each lower manifold. The hot section of the condenser is made up of 12-gauge black iron, followed by a section of cast iron, followed by 24-gauge stainless-steel (Type 317) condenser tubes. There are 12 manifolds and 12 mercury collecting pots in the trough under a water seal. The exhaust from the condenser system goes through a No. 40 rubber-covered American Blower fan and thence to a 5-ft. diameter 24-ft. high baffled fir tower, topped by a 24-ft. exhaust stack.

In both theory and practice it has been found that approximately as much fuel oil is required to vaporize and drive off a 10 percent moisture content as is required to heat the ore feed from atmospheric temperature up to 1,400 deg. Thus an absolutely dry ore should require only one-third as much fuel as ore containing a 20 percent moisture content. Another advantage of drying is the greatly decreased load placed on the condenser system.

Since most of the moisture in the ore is driven off before the ore reaches the main heating zone of the furnace, only small amounts of water are present in the exhaust gases. There is only the water of crystallization in the opalites, water from the combustion of fuel oil and the small amount of moisture free in the ore. As a result the temperature fall through the condenser system is rapid, and the final stack temperatures are exceedingly low. During the month of August final stack temperatures

rarely exceeded 95 to 100 deg. F. In the cold weather of January, 1942, final stack temperatures ranged as low as 40 and 45 deg. with the average about 70 to 85 deg.

Ultra-violet Determinations are Made for Stack Loss

As a result of this low temperature, mercury loss from the stack is very low. Ultra-violet absorption stack determination on mercury vapor indicates that mercury loss is not over 3 or 4 lb. per day, or something less than one-half of 1 percent.

The mercurial soot is collected in pots below the water seal at the lower ends of the manifolds. Due to the rapid cooling as a result of the thinness of the stainless steel used in the condenser tubes and the small amount of water which must be condensed from the furnace gases, the amount of liquid mercury accumulating at this point is small. The soot consists of mercury oxide, sulphide, calomel, and extremely finely divided mercury droplets coated with a thin film of unburned oil and three to ten times as much dust from the ore. The mercury content will vary from 10 to 50 percent.

The mercurial soot is retorted in two indirect fixed D tube velouts with lime to remove the chlorine and the resultant virgin mercury is filtered, bottled and shipped. It is not difficult to maintain the purity of the product above 99.999 percent volatile and free of silver, arsenic and antimony.

The personnel required for operation of the plant is small. Excluding the crusher operation and the work ahead of the crusher, only one man is required on each shift for furnace and power-plant operation. Since the plant is run on a 24-hour basis, three men handle the furnace operation and one man cleans up the condensers and bottles the quicksilver. One general repair man and one electrician are available in case of breakdowns at plant or mine.

The electrical installation, supplied by General Electric Company, is somewhat elaborate since all conveyors, feeders, blowers, etc., are interlocked so that no portion of the equipment can be started in the wrong sequence, and in the event of any failure all portions which would be thrown out of synchronization are also automatically stopped. Furnace control is handled largely from the operator's room on the first floor of the furnace building, where there is an 8-pen Brown recording pyrometer and also recording draft gauges, which give further indication as to the efficiency of the seals. Retort temperatures are also carried on the recording pyrometer, and time delay alarms are put on the ore feed from the Hardinge weightometer.

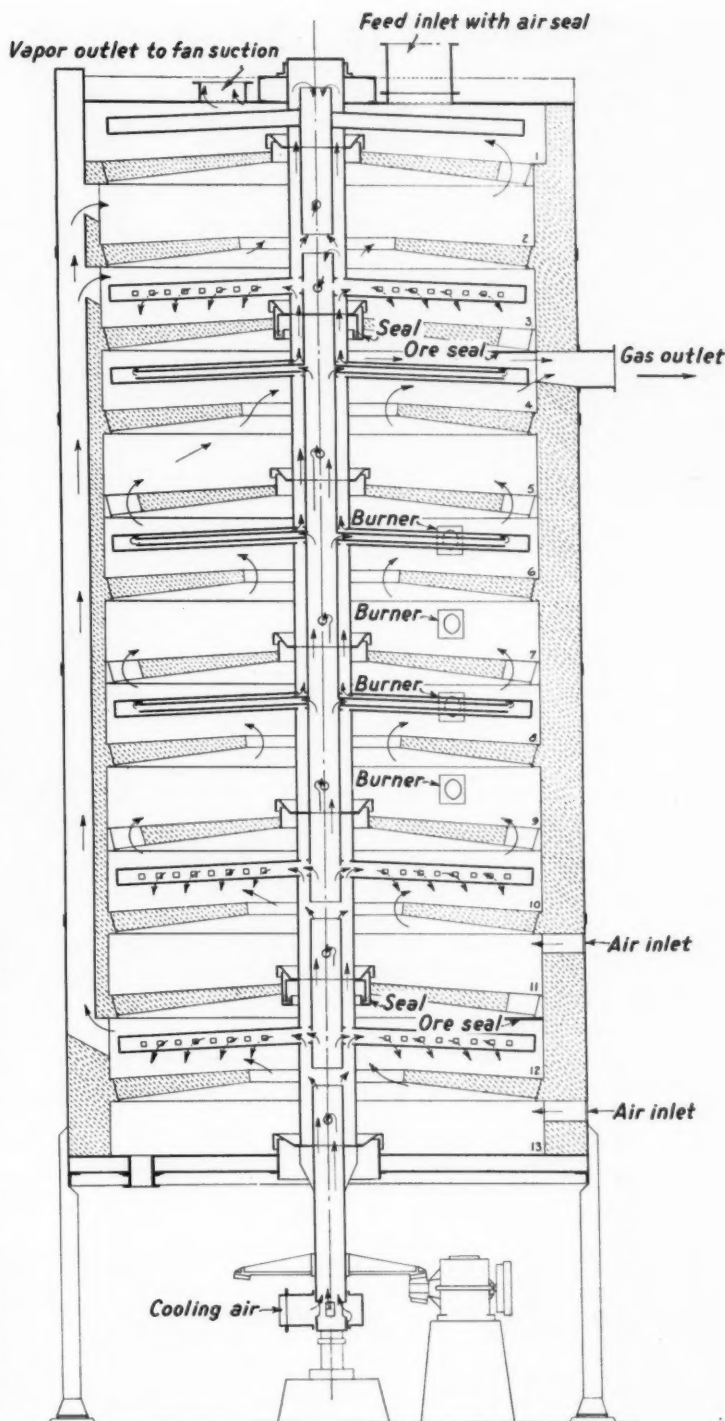


Fig. 1. A sectional view of the Nichols-Herreshoff furnace. The arrows indicate the direction of air and fumes

In the engine room adjoining the first floor of the furnace are located the three Cummins diesel units, each of 85 hp. capacity, for the complete

operation of the property. One unit operates the 60-kva. General Electric 440-volt 3-phase generator. The other operates the 365-cu. ft. Ingersoll-Rand



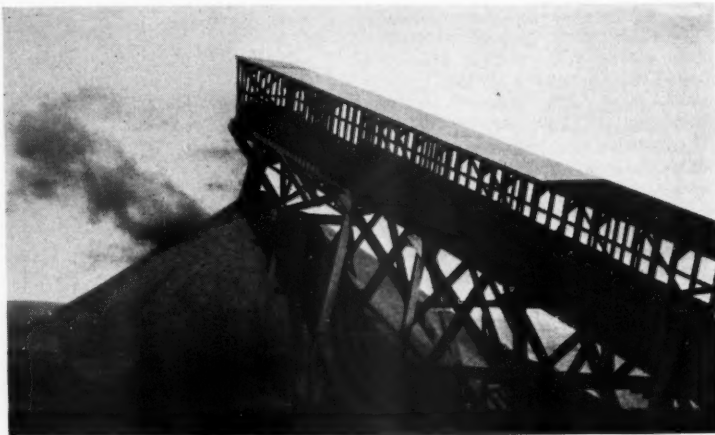
Three Cummins diesel units of 85 hp. provide power for all operations

compressor for mine air and a central unit is an emergency unit normally available for generator drive, which may be on short notice connected over to the compressor, so that there is always one standby, obviating any shutdown for lack of air or electrical power. No radiators are placed on the engines. The spray pond is located outside and near the engine room. The four spray nozzles provide adequate cooling in hot weather, and in cold weather heat from the engines and from the bottom deck of the furnace is utilized to aid in heating the change house, office and assay office.

Utilizing ultra-violet absorption methods developed at Horse Heaven Mines, in Oregon, regular readings are made to record the mercury vapor content of the stack gases and mer-

cury vapor content of the air in the furnace building and mercury room. Ultra-violet methods are also used in the assaying of the burned ore and for assaying the daily head and tail samples at the plant, as well as all mine samples.

The Nichols-Herreshoff furnace is rated conservatively by its manufacturers as a 72-ton plant on a 3-zone basis. Since installation the feed has gradually been increased to 125 tons a day. This seems to be the limit of the present condenser system. Only a small proportion of the burners available are in use, and it seems probable that furnace capacity may be in excess of 125 tons per day on a 3-zone basis, and, by converting to a straight-run furnace, capacity at somewhat decreased efficiency would be increased still further.



Burnt ore from the furnace has a temperature around 300 deg., as it is conveyed to the dump

A Field Test for Quicksilver

GEORGE R. FANSETT, mining engineer, Arizona Bureau of Mines, gives the following field test for quicksilver in the latest edition of Bulletin 150, published by the University of Arizona.

1. Mercury when heated with soda in a closed tube condenses as metallic globules of mercury on the sides of the tube. To make this test: Mix thoroughly a little of the finely powdered mineral with about three volumes of dry sodium carbonate (baking soda). Place in a closed tube about $\frac{1}{2}$ inch of this mixture and cover this layer with an additional layer of soda to a depth of about $\frac{1}{2}$ inch. Heat carefully and mercury will distill and condense as globules on the walls of the tube providing the mineral used in the test contains an appreciable amount of mercury (quicksilver). If only a little mercury

is formed, it will appear as a gray sublimate (coating) composed of minute globules which may be made to unite by rubbing with a splinter of wood.

2(a). Most compounds of mercury, if moistened with hydrochloric (muriatic) acid and rubbed on a piece of bright copper, will coat the copper. The copper will then appear as if it had been silver plated. In this test, quicker results are usually obtained if the mineral is powdered instead of in a chunk.

(b) This precipitation test can also be performed by boiling the mineral with hydrochloric acid in a test tube or some other glass or porcelain receptacle. Addition of a little powdered manganese dioxide expedites the reaction. A piece of bright copper immersed in this solution becomes covered by a thin coating of metallic

mercury, providing mercury is present.

3. W. G. Leighton (1935) has described a method by which small amounts of mercury may be detected in a sample of ore by an indirect fluorescent means. The sample to be tested is powdered and heated over a Bunsen burner or similar source of heat. During heating of the sample an ultraviolet light source is placed close to the sample, and a willemite-coated screen is placed behind the sample. The mercury in the sample is volatilized and causes a dense shadow to appear on the willemite screen. Without the presence of volatilized mercury the willemite screen will fluoresce a uniform strong green over the entire surface. Ordinary smoke has little effect upon the willemite screen, but mercury vapor appears as a dense, black cloud of smoke against the screen.

Metal Mine War Conference

At Salt Lake City, western mine operators and officials of war agencies will have opportunity to meet and clarify problems of the industry's war effort.

THE MEETING of the metal mining industry at Hotel Utah, Salt Lake City, November 16 and 17, 1942, under auspices of the Western Division of the American Mining Congress will be a strategically-timed council with officials of the war agencies, who will help metal mine operators to effectively plan their share in the 1943 "blitz" against the Axis.

High ranking officials of the War Production Board, War Manpower Commission, Selective Service System, Office of Price Administration, Metals Reserve Company, Bureau of Mines and other agencies concerned with metal and mineral production will outline their policies and procedures and discuss the achievements so far obtained. Each session will virtually be a broadside of information to provide a general blueprint or line of attack that will win more production of copper, lead, zinc, and other critical and strategic materials.



Frank J. McSherry
Brigadier General, U. S. A.

The American Mining Congress has been fortunate to obtain Major General Lewis B. Hershey of the Selective Service System and Brigadier General Frank J. McSherry of the War Manpower Commission, to speak on one of the industry's all-important problems—the manpower supply for that army of workers needed in the metal mining industry. The entire morning of Tuesday, November 17, will be given over to this subject.

Registration will begin on Monday at 8 A. M. at the Hotel Utah, with the morning meeting at 10, opened by Howard I. Young, President of the American Mining



Lewis B. Hershey
Major General, U. S. A.



Hon. Pat McCarran
Senator from Nevada



William J. O'Connor
Chairman, Western Division

Congress. Among the speakers will be H. W. Dodge, Assistant Deputy Director-General of Industry Operations, WPB; Dr. Wilbur A. Nelson, Mining Branch, WPB, and leading officials of the various WPB branches responsible for production of copper, zinc, lead, ferro-alloy and miscellaneous minerals.

Questions and open discussion will be welcomed, in fact the entire conference is designed to bring out the fullest possible interchange of viewpoints.



Howard I. Young
President, American Mining Congress

active and sustained interest in mining and its problems. Following the luncheon, meetings will resume at the Hotel Utah, where Charles B. Henderson, Chairman, Reconstruction Finance Corporation and President of Metals Reserve Company, will discuss the subject "Developing Strategic Metal Production." Dr. R. R. Sayers, Director, U. S. Bureau of Mines, will present the present and prospective work of the Bureau of Mines in the war program, and R. E. Snoberger, Salvage Division, WPB, will discuss the progress of the scrap drive and the further efforts required from the mining industry in keeping iron and steel plants in full production.

On Monday evening, group meetings will be held



John W. Haddock
Chairman, Manufacturers Division

PROGRAM

SUNDAY, NOVEMBER 15

- 10:00 A.M. Conference of Secretaries,
Western Mine Operators Associations,
Hotel Utah
- 4:30-6:30 P.M. Cocktail Party for visiting mining men
(and ladies),
Alta Club

MONDAY, NOVEMBER 16

MORNING SESSION, HOTEL UTAH

Opening of Conference

HOWARD I. YOUNG, President, American Mining Congress

The Problems of Metal Production

H. W. DODGE, Office of Director-General of Industry
Operations, War Production Board
WILBUR A. NELSON, Mining Branch, WPB
H. O. KING, Copper Branch, WPB
W. C. PAGE, Zinc Branch, WPB
ERWIN VOGELSANG, Lead Branch, WPB
MILES K. SMITH } Ferro-Alloys Branch, WPB
ANDREW LEITH }
RICHARD J. LUND, Miscellaneous Minerals Branch,
WPB

Questions and Open Discussion

LUNCHEON, NEWHOUSE HOTEL

Presiding: W. J. O'CONNOR, Chairman Western Division,
American Mining Congress

Address: Honorable PAT MCCARRAN, United States Senator from Nevada.

AFTERNOON SESSION, HOTEL UTAH

Developing Strategic Metal Production

CHARLES B. HENDERSON, Chairman, Reconstruction
Finance Corp.; President, Metals Reserve Company

The Bureau of Mines in the War Program

DR. R. R. SAYERS, Director, U. S. Bureau of Mines

Get That Scrap

R. E. SNOBERGER, Salvage Division, War Production Board

Open discussion and questions on each subject

EVENING

Group meetings to discuss production problems of the various metals. Informal, round-table sessions in which the WPB and other war agency representatives will take part.

TUESDAY, NOVEMBER 17

MORNING SESSION, HOTEL UTAH

Manpower for the Mines

MAJOR GENERAL LEWIS B. HERSHEY, Director, Selective Service System

BRIGADIER-GENERAL FRANK J. MCSHERRY, Director of Operations, War Manpower Commission

Questions and Open Discussion

LUNCHEON MEETING

Board of Directors, American Mining Congress, and Board of Governors, Western Division

AFTERNOON SESSION, HOTEL UTAH

Metal Prices, Quotas and Premium Payments

DONALD H. WALLACE, Assistant Administrator, Office of Price Administration

JESSE L. MAURY, Chief Premium Price Analyst, Copper, Lead and Zinc, OPA

Questions and Open Discussion

SPECIAL MANUFACTURERS ROUND TABLE

Problems of Materials Supply

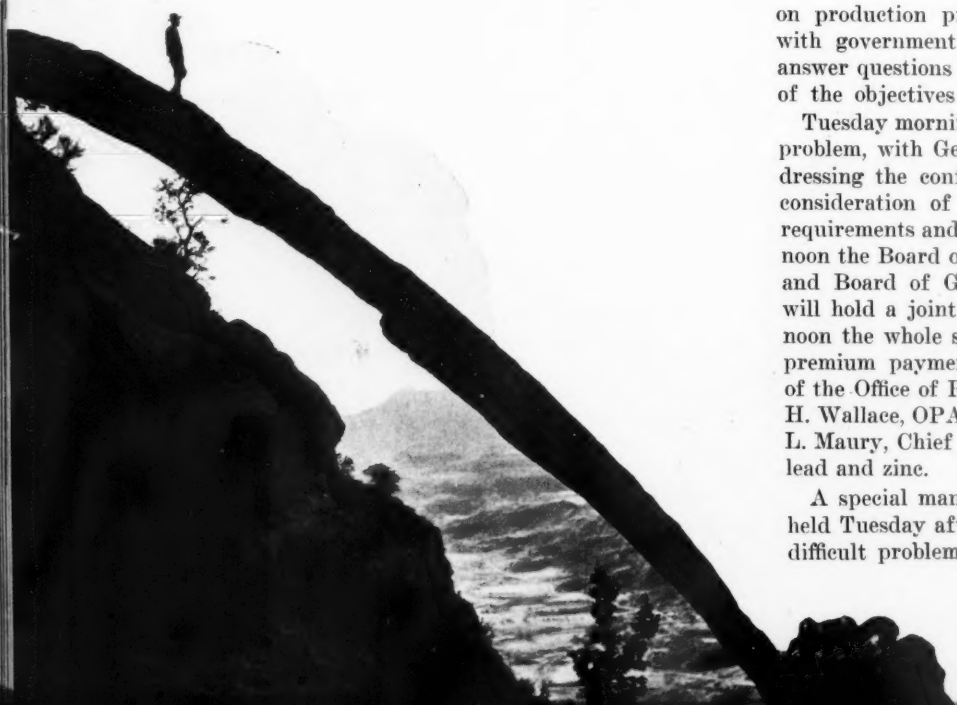
DR. WILBUR A. NELSON, Administrator, Mining Branch, WPB

LANE W. HILDRETH, Chief, Machinery Division, Mining Branch, WPB

on production problems of the particular metals, with government representatives in attendance to answer questions and join in an informal discussion of the objectives sought.

Tuesday morning will be devoted to the manpower problem, with Generals Hershey and McSherry addressing the conference and joining in a thorough consideration of the mining industry's manpower requirements and how they may be met. On Tuesday noon the Board of Directors of the Mining Congress and Board of Governors of the Western Division will hold a joint luncheon meeting. Tuesday afternoon the whole subject of metal prices, quotas and premium payments will be discussed with officials of the Office of Price Administration, led by Donald H. Wallace, OPA Assistant Administrator, and Jesse L. Maury, Chief Premium Price Analyst for copper, lead and zinc.

A special manufacturers round-table will also be held Tuesday afternoon to consider the increasingly difficult problems of priorities, allocations and ma-



Speakers at War Conference



H. W. Dodge
Asst. Deputy Director
General of Industry
Operation, WPB



Dr. Wilbur A. Nelson
Mining Branch, WPB



H. O. King
Copper Branch, WPB



Erwin Vogelsang
Lead Branch, WPB



Richard J. Lund
Miscellaneous Minerals
Branch, WPB



Charles B. Henderson
Chairman, RFC



Dr. R. R. Sayers
Director, U. S. Bureau of
Mines



Donald H. Wallace
Assistant Administrator,
OPA



Jesse L. Maury
Chief Premium Price
Analyst, OPA

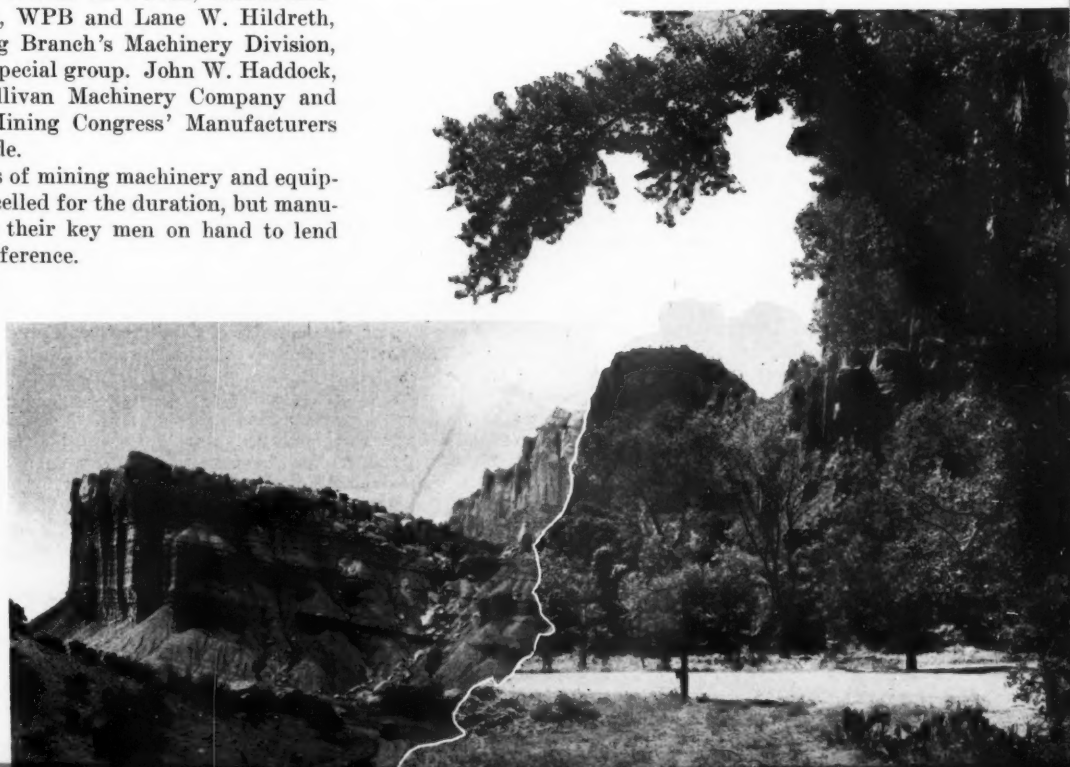


R. E. Snoberger
Salvage Division, WPB

terials supply. Dr. Wilbur A. Nelson, Administrator, Mining Branch, WPB and Lane W. Hildreth, Chief of the Mining Branch's Machinery Division, will meet with this special group. John W. Haddock, Vice President, Sullivan Machinery Company and Chairman of the Mining Congress' Manufacturers Division, will preside.

The usual exhibits of mining machinery and equipment have been cancelled for the duration, but manufacturers will have their key men on hand to lend their aid to the conference.

Scenes
from
Utah's
National
Parks





The loaded trip has entered the dump shed and the rope has been shifted to the empty trip

Reopening and Modernizing An Abandoned Mine

ALMOST 10 years ago the former operators of what is now No. 21 Mine of the Jamison Coal & Coke Company halted its operation, removed the pumps and equipment, and allowed the workings to fill with water. After this period of idleness in the space of three years the mine was dewatered, explored, modernized, and equipped with mechanical loading equipment and is now producing high grade coking coal for the war effort. The area comprising the No. 21 Mine was formerly called the Hostetter, Whitney and Marguerite Mines, each a separate mine with separate slope openings, joined only for common drainage. These properties are leased to the Jamison Coal & Coke Company and will be worked as one operation. In addition a small adjoining mine known as the St. Vincent Mine containing little recoverable coal has been purchased for use as a pump station as it contains the opening nearest to the lowest point in the field.

The No. 21 mine is located a few miles south of Latrobe, Pa., in the Latrobe Basin. The basin is cigar-shaped, roughly 18 miles long and 3½ miles wide tapering to the north and cropping out at each end. It forms the basin of a syncline and is

Several problems were overcome and today the No. 21 mine of the Jamison Coal & Coke Company provides a high grade coal for the war effort.

By WILL B. JAMISON

*Chief Engineer
Jamison Coal & Coke Company*

a portion of the coal that is generally referred to as "Connellsville Coking Coal." The No. 21 mine lies in the upper portion of the basin and extends completely across it. The Hostetter and Whitney mine openings are at the crop on the east side of the basin while the Marguerite opening is on the west. On the east side of the basin at the crop, the coal dips at approximately a 9 percent grade, gradually flattening off until it is level about 7,000 ft. from the crop. The dip then gradually increases to around a 12 percent grade at the crop on the west, about 10,000 ft. from the center of the syncline.

The coal seam averages between 7 and 8 ft. high, and while local rolls,

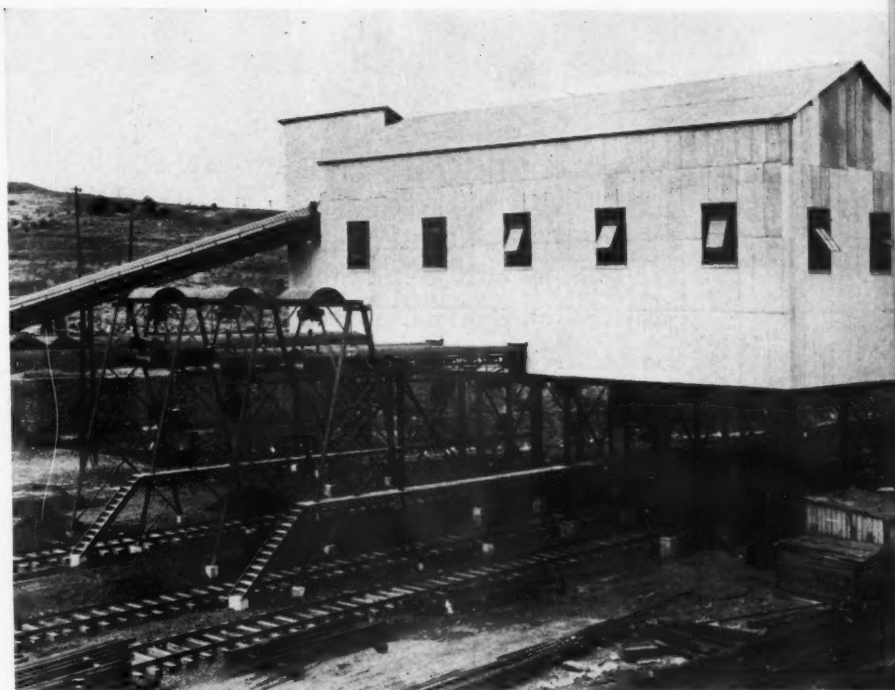
faults, and low areas are found, it is generally quite uniform. Included in the seam are a few small binders, usually uniform, about ½ to 1 in. thick. The coal is low in sulphur, has a moderate ash content, and has a high ash softening temperature. It is soft and as mined contains an extremely high percentage of fines, the impurities in the seam, being harder than the coal, are found mainly in the prepared sizes. The slack coal furnishes the best analysis and makes an excellent by-product coal; and while the prepared sizes are often used with the slack for by-product purposes, their quality is not so high as that of the slack and they are usually sold for fuel. In mining, 4 to 8 in.

of top and bottom coal are left in place, because of high ash and sulphur content.

The drawslate overlaying the coal is generally from 10 to 18 in. thick although thicknesses of 3 or even 5 ft. are not uncommon. The black slate over the drawslate may vary from practically negligible thickness to as much as 20 or 30 ft. and is covered by an easily broken sandstone. In contrast with seams overlaid by massive rock, gob falls can be made relatively easy provided those practices generally associated with proper block extraction are followed. Beneath the coal lies a fire clay of varying depth which becomes quite soft on exposure to water. Even when little if any water is found, this fine clay may become soft for some obscure reason. When this condition of soft bottom occurs, it must be met either by placing ties beneath the cross ties as a sort of crib or by using wide plank as cross ties.

After the pumps and all equipment were removed from the mine by the previous operating company, the mine filled with water and during a period of flood, the water rapidly rose above the normal level until its pressure broke the barrier between the Hostetter and St. Vincent mines. When the area was to be dewatered it was most practical to pump from the shaft of the St. Vincent mine. Approximately 2,760 million gallons of water were pumped during the period of dewatering and required over 20 months.

After the mine had been dewatered, a 6-ft. Jeffrey "Aerodyne" fan powered by a 150 hp. motor was installed and the work of exploration and recovery of the mine began. This

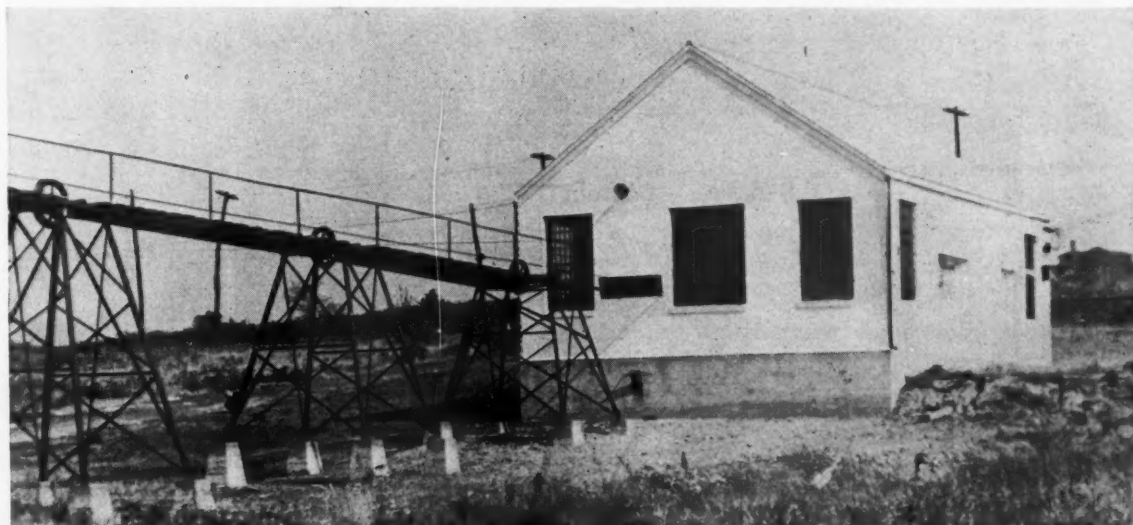


The new tipple has a screening capacity of 400 tons of coal per hour

work was extremely hazardous, because of the large amount of water held back by falls, by the congested condition of the airways, by the number of stoppings overturned by the rush of water when it broke into the St. Vincent mine, and by the large amount of black damp in areas without ventilation. The fan was installed at the air shaft located in the center of the Hostetter area and this area

was first explored. Next the exploration of the Whitney area was undertaken. This was most difficult as the only route to establish ventilation in the Whitney area was through 7,000 ft. of badly congested entries driven in a level region. These entries were full of water and black damp, and much material had to be moved by hand to drain off this water and es-

(Continued on page 36)



The hoist house contains an 800 hp. wound rotor induction motor. A gear ratio changing device has a maximum rope speed of 750 or 1,500 ft. per minute

JEFFREY LOCOMOTIVE

1. KEEP THE LOCOMOTIVE CLEAN

At least twice a week, using compressed air, blow out dirt in cab, from around controller, motors, resistor, contactors, relays, cable reel, transfer switch, any auxiliary switches, and wiring.

Keep commutators and brush holders clean; the former free from grease, the brushes operating freely in the holders.

Look inside motor frames occasionally — remove accumulation of dirt or grease. If found — remove cause.

Keep inside of electrical enclosures clean.

Cleanliness prevents electrical breakdown — often reveals minor defects that can be corrected before they result in breakdowns requiring major repairs.

2. MAKE SCHEDULED INSPECTIONS

All operating parts, electrical and mechanical.

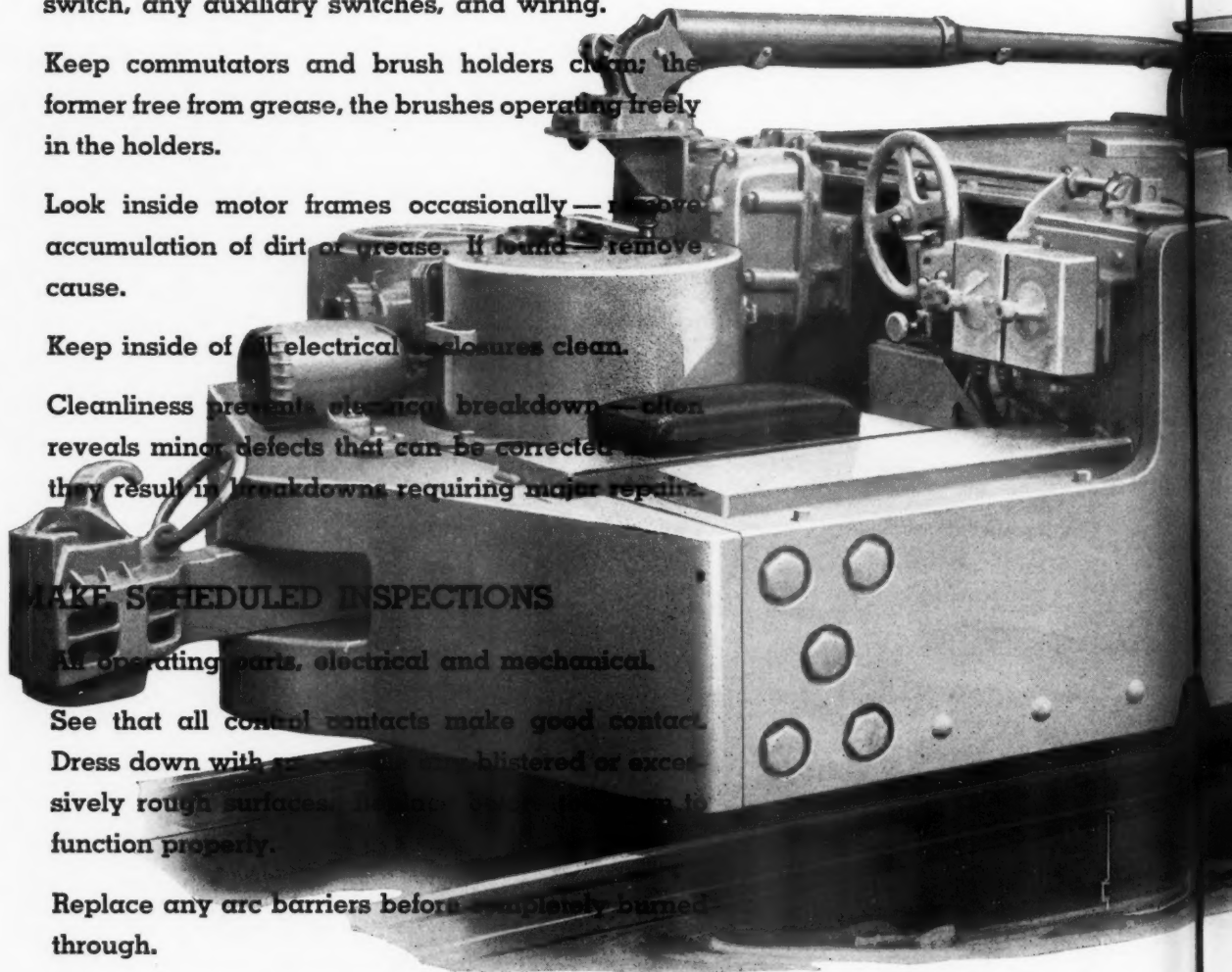
See that all control contacts make good contact. Dress down with sandpaper any blistered or excessively rough surfaces. Insure contactors are free to function properly.

Replace any arc barriers before completely burned through.

Check electrical connections to see that they are tight.

Check resistor to see that there are no signs of burning.

To get continuity of service and maintain your locomotive, with the east



JEFFREY 8-TON
TESTED GATHERING



MAINTENANCE HINTS

cead maximum production from
the least time out for repairs:

Check bearings (armature, motor axle suspension, journal, and equalizer) to ascertain that they are taking lubricant properly . . . replace before excessively worn.

Check journal box guides and brake rigging.

Apply and release brakes to check adjustment of brake shoes and need for renewal.

Inspect sanding equipment—see that sand runs freely from each spout and strikes rails properly.

Keep cable reel adjusted for proper tension in cable. Cable is particularly difficult to replace.

3. LUBRICATE AT REGULAR INTERVALS

Use proper kind and proper amount, as required, on bearings, linkages, and brake assemblies. All lubricants and lubricating devices should be handled so that they do not become contaminated with foreign matter.

163-42

4. DO NOT OVERLOAD LOCOMOTIVE

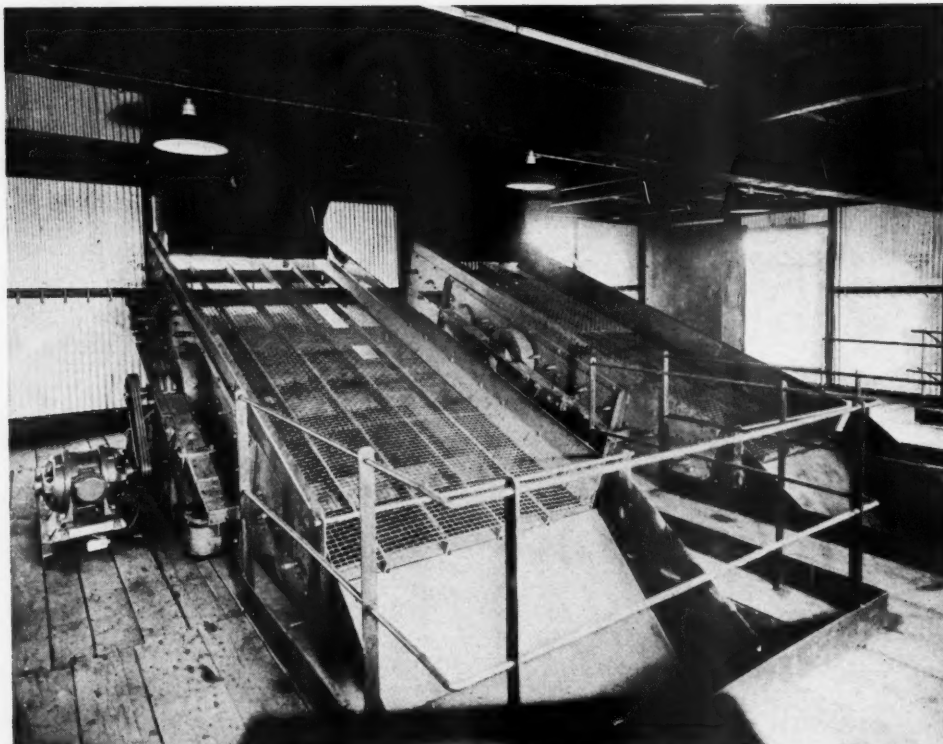
Note temperature of motors occasionally at end of shift. Overheating causes insulation to deteriorate, necessitates more frequent rewinding, and interferes with proper lubrication of motor bearings.

Keep down the load hauled to capacity of locomotive. A few LESS CARS PER TRIP may haul MORE COAL PER SHIFT with much less maintenance.

A locomotive properly loaded uses sand sparingly, only on occasional adverse track conditions.

ON EXPLOSION
ERING LOCOMOTIVE

THE JEFFREY MANUFACTURING COMPANY
958-99 NORTH FOURTH STREET COLUMBUS, OHIO



Two Robins Gyrex vibrating screens make a separation of $1\frac{1}{4}$ in. on the top deck and $\frac{3}{4}$ in. on the bottom

tablish ventilation. In addition the Whitney area was filled with black damp and there was great danger of pulling the black damp into these recovered entries when the water seal that held it back was broken. The men who successfully accomplished this work cannot receive too much credit. Because the Marguerite area is higher than the Hostetter area its exploration was relatively easy.

After this exploration and the available maps and records were studied, a number of facts were established and decisions made. The property contained approximately 1,700 acres of coal of which more than 65 percent had already been developed in blocks or rooms on 100-ft. centers or less. At least 70 percent of the entries were badly congested with about 3 ft. of fallen material and often considerably more. It was decided that the mines could be most economically worked by combining them as one. Because of the position of the remaining coal and the grades involved, the Hostetter slope opening was chosen as the one to be used in the new plan of operation.

Cleaning of this slope and establishment of the permanent ventilation system was started. A small caterpillar mounted loader was moved from another mine of this company, 20 second-hand mine cars were purchased, and locomotives were pro-

vided. With a relatively small crew, all loose material in the entry was scaled down, trolley wire was hung, the material loaded, hauled to the outside and dumped, and track was laid. In all some 16,000 ft. of entry was cleaned in this manner before the mine started production of coal. Many more thousands of feet of entry will have to be cleaned in a similar manner before it will be possible to work the many scattered sections of the mine.

Trackless Mining Equipment Was Investigated

The No. 20 mine of the Jamison Coal & Coke Company is located just south of and adjacent to the No. 21 mine. This mine was one of the first mines in western Pennsylvania to be completely mechanized and has used track-mounted loading and cutting machines for over five years. With the advent of trackless mining, however, it was decided to investigate this type of operation before purchasing the loading equipment for the No. 21 mine. A 14 BU Joy loader, a rubber-tired 29-U Jeffrey cutting machine, and two Lee-Norse shuttle cars were purchased for the test. A section of solid coal known to be in an area of relatively good bottom condition was selected. The intention was to try this equipment in a section with poor bottom, to see if it

proved more successful than track-mounted equipment. The results were quite unsatisfactory not through any fault of the equipment but because the constant traveling of the machinery over the bottom seemed to disturb the fine clay and make it soft. Measures such as putting rock in these soft spots or even planking them were moderately successful but were very expensive. In addition these soft spots were not discovered as a rule until the bottom coal broke beneath the weight of the machinery and consequently each soft spot caused a delay in production until the machine was pulled out of the hole and the road way repaired. These results were substantiated by an additional trial in another section.

On the basis of these trials and the experience at No. 20 and other mines of the company, track-mounted equipment was chosen and four Jeffrey 29-U cutting machines, four Jeffrey L-600 loading machines were ordered together with 150 8-ton Differential steel mine cars equipped with Willison automatic couplers and eight wheels. In addition, three Goodman 260-A loading machines which had seen considerable service in the West Virginia mines of the company, were completely overhauled and pressed into service. To conserve material and productive effort for the defense program, nine good second-hand 10-

ton gathering locomotives and one 12-ton haulage locomotive were purchased; these have been put in excellent shape and are giving good service.

The top 4,000 ft. of the Hostetter slope was found to be too steep for locomotive haulage and considerable study was given to the possibility of a system of belts to convey the coal this distance. The results of the study showed that belts would be uneconomical for three reasons. First, it was doubtful if the savings in the operating cost of a conveyor slope would offset the difference between its initial investment as compared to the alternate method of rope haul; particularly since the belt installation would involve an extremely heavy cost for cleaning a parallel entry (badly choked with slate), laying rail and hanging wire so as to provide a track into the mine which was considered an absolute necessity to provide a way to get supplies, mine cars, and large equipment in and out of the mine. Second, the maximum expected daily tonnage of 6,000 tons could be handled nicely with a rope haulage. Last the equipment needed for a rope haul was readily available while the delivery of the equipment and belts for the belt system was uncertain.

Main haulage throughout the mine has been laid with 70 lb. rail. All track expected to be in use over five years has been laid on 5 x 7-in. creosoted ties.

Green oak ties locally cut are used on short life track and will be used in some sections of long life track where the bottom is exceptionally damp. In damp conditions green oak ties have excellent life. Coke "ashes" or screenings are being used for ballast. Additional standard practice includes the use of 6-0 trolley wire on the main line and 4-0 in the sections. The 500,000 CM feed wires are hung on separate insulators and feed the sections. In most cases trolley and feed wire are separated so as to prevent the locomotives from "stealing" the power needed by the sections located beyond.

Another Ignition Rectifier to Be Installed

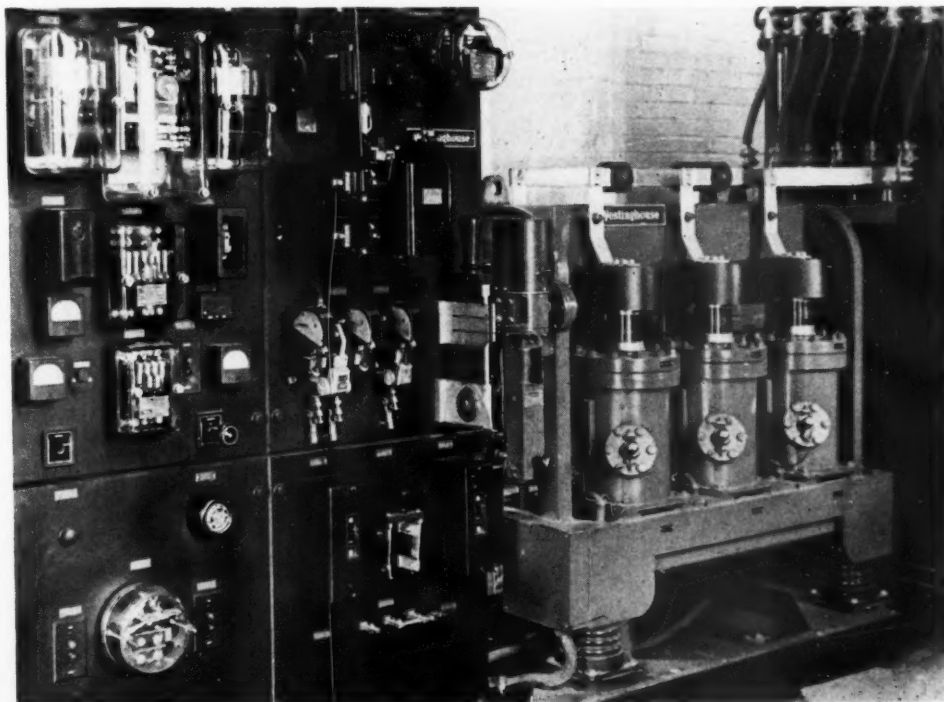
Electrical power is purchased from the local utility at 2,200 volts at three separate metering points, but the use of the power has been so arranged that the same load cannot shift from one metering point to another thus doubling the demand caused by the same load. This has been accomplished by supplying all mine load from one metering point, and the trolley and hoist loads from another. The third supplies the pump station and accessories. Direct current power for the mine is supplied at 275 volts by a 300 kw. Ignitron rectifier and a 200 kw. motor-generator set. A second identical rectifier will be installed in the center of the Whitney

field as soon as the workings reach this point. This conversion equipment is being operated without attendants and is protected against mechanical or electrical damage. In case of failure of the fan for any cause, power is automatically removed from the mine. In addition distant metering and control of the rectifier from the control room located at the slope is provided. This will also be applied to the second rectifier when installed.

While no methane has been found with a safety lamp, recommended precautions are being taken lest any be encountered. The 200,000 c.f.m. of air circulated by the fan should be more than enough to meet any requirement. Additional air is easy to obtain by increasing the speed of the fan. The cutting, loading, and drilling equipment is all permissible. In addition permissible electric cap lamps, safety lamps, and explosives are used.

The block system of mining is employed. All entries are driven on 100 ft. centers with crosscuts turned on 65 degrees. Crosscuts are staggered so as to avoid large unsupported areas. In block extraction the semi-open end system of mining is employed. As the old workings have been developed for various plans of mining, each section and area will have to be mined and new development made to conform with the previous development. Thus one stand-

A 300 kw. Westinghouse Ignitron rectifier and a 200 kw. motor generator set supply direct current



ard system of development and extraction will be impossible.

From the side track located 4,000 ft. from the pit mouth, the mine cars are hauled by a slope hoist to the outside. The hoist is powered by an 800-hp. wound rotor induction motor, and by means of a gear ratio changing device has a maximum rope speed of 750 and 1,500 ft. per minute. The hoist and slope layout will handle a maximum of 18 cars per trip. The slow speed is being used exclusively now; but in the future when greater tonnage is to be handled, the empty trip going back into the side track will use the high speed. The trip is pulled out of the mine past the loaded track switch, and still attached to the rope is dropped off of a 5 percent grade into the level loaded track. The trip is coupled to the cars still standing in the rotary dump and car haul, by reversing the car haul and backing these cars into the trip. The car haul is then run forward and dumping of the trip proceeds. In the meantime the rope is shifted to the empty trip waiting on the parallel empty track, and attached to the trip which is pulled out of the empty track on to the grade and dropped back into the mine.

The rotary dump and car haul are designed to dump one and a half cars a minute. The cars are fitted with swivel couplings and are dumped in train. After dumping the coupler latch is pulled on the empty car and the car haul in advancing the trip pushes this empty car over a knuckle onto a short steep down grade. The empty car leaves the train and passes into the kick-back and rolls back into the empty track where it is coupled to the empty trip.

Beneath the dump are a coal and slate bin each capable of holding three cars of material. A motor operated

gate controlled by the dump operator diverts the material into the proper bin. The coal is fed onto a 36-in. conveyor belt running to the tippie by an electric vibrator type feeder. The slate is fed into a slate car by the same type feeder which is controlled by a timing device. With proper setting of the timer and the rate of flow over the feeder, the proper amount of slate is discharged into the car and the feeder stops automatically. The car is pulled up an incline onto the slate dump by a hoist and rope where it strikes a trigger which opens its doors discharging the slate. This hoist is push-button controlled and will automatically stop the car at the top of the dump and return it to its proper spot beneath the feeder. The hoist control buttons as well as the feeder control button are operated by the dump operator.

A Tippie Was Installed Temporarily

The tippie, designed and built by the Interstate Engineers and Constructors, Inc., of Fairmont, W. Va., will screen 400 tons per hour. The original intention was to install a cleaning plant to clean the $\frac{3}{4}$ x 4-in. coal; but because of the shortage of material and engineering talent, a tippie to which the cleaning plant may easily be added was installed. Four sizes, +2-in. lump, $1\frac{1}{4}$ x 2-in., $\frac{3}{4}$ x $1\frac{1}{4}$ -in., and $\frac{3}{4}$ -in. slack, and any mixture of these sizes may be made. The plus 2-in. lump is hand picked. The sized coal and run of mine are loaded in railroad cars by booms while the slack is handled by a bifurcated chute. All belt and conveyor drives consist of gearmotors with one further reduction by sprockets and

roller chain. Three vibrators do all of the screening.

At the present time three acid resisting centrifugal pumps are being installed in a newly constructed pump room near the bottom of the shaft of the St. Vincent mine. These pumps will have a combined capacity of 12,000 gallons per minute. In addition there are now located in the shaft two deep well type pumps having a combined capacity of over 7,000 gallons per minute. It is hoped that one of these may be installed permanently. The pump room floor is 10 ft above the regular shaft bottom. At this elevation most of the St. Vincent Mine and a considerable portion of the Hostetter property will be flooded. During normal operation the water will be kept well below the shaft bottom; however, in times of flood or extremely wet weather a considerable increase in mine water must be handled. To take care of such an increase, to permit off peak pumping, and to have some safety factor should a failure of equipment or power occur, this large sump is regarded as necessary.

An appraisal of the mine, its past development, the condition of its workings, and the manner of its reopening and equipping, in the light of previous experience in this field, leads one to believe that it will be successful now and in the future. The extent of its present success will be measured by the tons of high grade by-product coal that it is contributing to the war effort. As for the future, the management realizes that because of its natural conditions the mine will never be known as a low cost producer, but hopes that the combination of careful planning, wise expenditures, quality of product, and efficient management, will permit a proper return on the investment.

Old beehive coke ovens, relics of bygone days, are quiet alongside of the modern screening plant



Track Mounted Mechanical Loading at Snow Hill

EDITOR'S NOTE

The Snow Hill Coal Corporation has recently published a complete account of the mechanical operating practices at Talleydale Mine, written by the company officials. The preface states:

"The purpose of assembling these ideas is to place in the hands of our foremen a handbook covering the various phases of the operation as a whole and its relationship to his department. Also to pass along to the foremen of tomorrow information which may be valuable to him and to our company."

The article presented here is taken from this instructive publication, but many of the details, especially prepared for the instruction of the Snow Hill foremen, have been omitted and this article is confined to describing the principal operating features.

Modern operating methods directed by an efficient management have solved many engineering problems at this property, near Terre Haute, Ind.

The average shift production for a loading unit is about 525 tons. Records on past performances indicate that the machine is engaging in actual loading about 60 percent of the time; moving requires about 12 percent of the shift and the remainder of the idle time (28 percent of the shift) is consumed in car changes and other delays of various causes. A daily report is kept by each foreman, assisted by the machine operator and motorman, showing the amount of time lost and the reasons; a monthly report (see Fig. 5) is compiled from these records, which enables the management to determine and correct the serious sources of time delays.

Good Haulage Requires Care

In mechanical loading the haulage system is the throttle to the production, and unusual care has been given to see that the track in each part of the mine is designed to suit the size of the equipment which is to be moved over it, the density of traffic, steepness of grades, and the expected life of the entry. The high cost of track construction is quite an item, and this cost is wasted unless continual inspection is used to maintain the track in its original state. Maintenance men travel these lines and correct bad joints, alignment or any other conditions which might retard the speed and safety of the main-line operation.

THE TALLEYDALE MINE of the Snow Hill Coal Corporation is a mechanized operation working the Indiana No. 3 seam, which has an average thickness of 6 ft. Mechanical loaders have been in use there for several years and have succeeded in overcoming some rather severe mining conditions, but every mine has operating difficulties, and the purpose of this article is to bring out the point that these can always be met by careful management, proper planning, and systematic procedure.

Track-Mounted Machines Used

There are seven Goodman 260 track-mounted loading machines operating on the day shift and four at night with short crew, loading out main headings. The room-and-pillar mining system is used and a standard panel is shown in Figure 1. Entries are 12 ft. wide, rooms are 24 ft. wide on 45-ft. centers, and a series of three rooms is advanced abreast; the center one is taken as the principal haulage line with connecting switches laid through the break-throughs to the adjoining rooms on each side. These switches, by providing car storage close to the working faces, reduce the travel of the service locomotive and the time of the car changes.



The operator carefully guides the track loader

The rolling equipment consists of three 10-ton General Electric locomotives for the main line; five 8-ton General Electric cable reel locomotives for the relay haulage, and seven 6-ton cable reel locomotives for the service operations. On the south side of the mine, where there are three loaders, a relay motor is used for each unit, and on the north side of the mine two relays serve three loading machines. There are 205 solid-end steel mine cars of 5.8 tons capacity equipped with Allen and Garcia semi-automatic couplings and loose wheels running on sealed ball bearings.

The plan of development eliminates 90-degree curves by turning places on 45-degree angles. This results in considerable time saving in laying a turnout, and further economy is had by planning the work ahead so as to eliminate unnecessary relaying at places where switches are to be installed. The entry switches, by the way, are accurately located on survey points. The main-line track has 60- and 70-lb. rail with 6-bolt angle bars laid on treated wood ties; during the development a temporary track is laid with 40-lb. rail on steel ties, and the permanent track is extended on days that the mine is not hoisting. Considerable care is used in the construction of the main haulage; levels and center sights are set by the engineers and grading is done where necessary. After the track has been in service for a short time it is rechecked for elevation and alignment.

The secondary track in the cross entries has 45-lb. rail with 4-bolt angle bars and treated wood ties. The rooms use 40-lb. rail on steel ties, with fishplates or 2-bolt angle bars. As both the cutting and loading machines are track mounted, the rail is advanced after each cleanup to within about 6 ft. of the face with 7- or 8-ft. jumpers; the room rails are 14-, 15- and 16-ft. lengths so as to reduce cutting to a minimum.

Face Preparation

Efficient mechanical loading and obtaining suitable coal sizes depends largely on the preparatory operations in all phases. Drilling and shooting are of course primary essentials, but in track loading it is also a matter of great importance to cut the places exactly on sights and to the required width so that the ribs will be straight and the rail can be properly laid. Unless these points are observed overhangs and tight coal will result.

The coal is rather friable and, combined with this characteristic, a number of small partings and bedding planes make a difficult shooting problem; the two most prominent impurities are a 1-in. pyrite band about 9 in. above the bottom and another about 28 in. above the bottom, which varies from 1 to 2 in. thick. Little effort is made to remove these part-

TABLE 1

CUTTING BIT SERVICE AND COST RECORD FOR 1941

Tons coal cut.....	781,595
Number of new bits used.....	44,275
Number of bits resharpened.....	801,150
Total number bit settings.....	845,425
Average resharpenings per bit.....	18
Average bit settings per ton coal.....	1.08
Total bit cost, labor and material.....	\$3,629.23
Cost per bit point, labor and material.....	.0043
Bit cost per ton coal.....	.0046

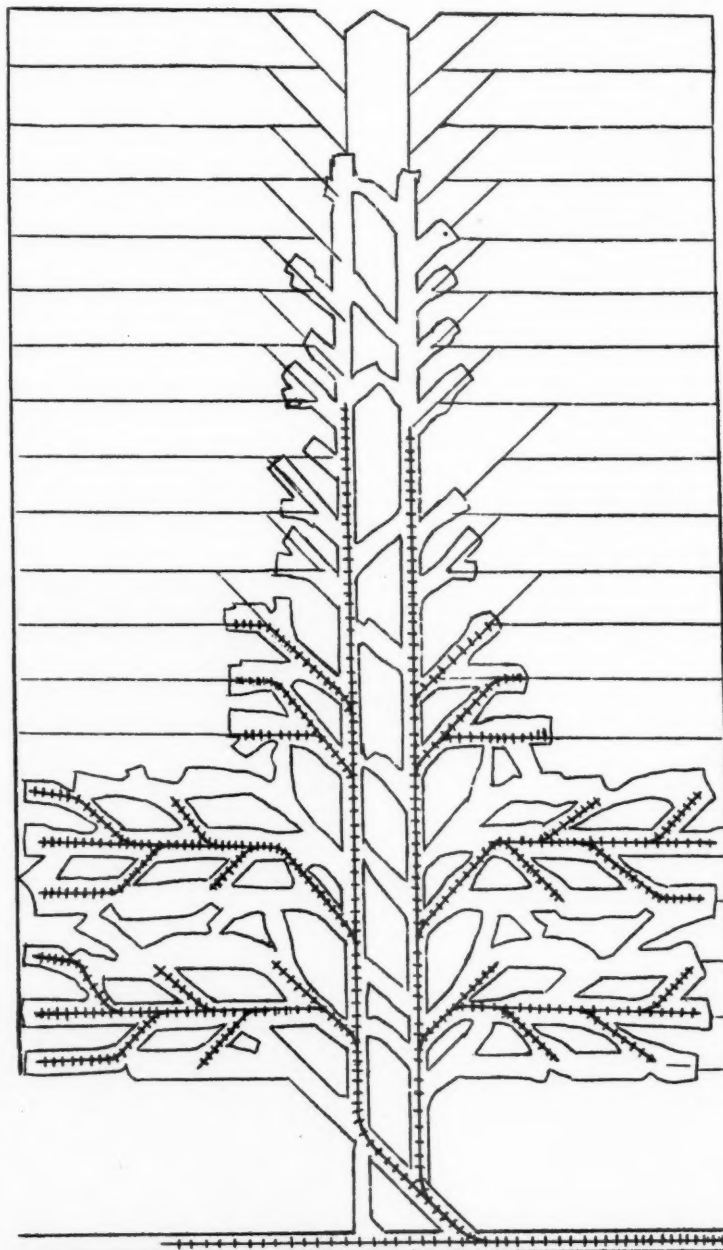


Fig. 1. Working plan of panel in No. 3 seam

ings underground as a mechanical cleaning plant on the surface is equipped to prepare a satisfactory product.

Track-mounted Goodman cutting machines with 8-ft. cutter bars undercut the coal, using bits of either silicon-manganese steel or high-carbon steel, which are heat treated and sharpened in a Sullivan bit machine. The service and cost record during the year of 1941 is given in Table 1, which shows that the bit cost for materials of replacement, plus labor for resharpening, was slightly less than $\frac{1}{2}$ cent per ton of coal.

The drills are the Dooley type with Chicago Pneumatic motors and Tiger-claw bits; 198,000 bits were used in 1941, which shows the severe condition. A push truck with a cable reel is provided for the drilling crew in transporting their equipment. A number of different types of explosives, sizes of sticks, and arrangements of drill holes have been tried and the present methods have been developed which are, for the most part, successful in producing good falls for loading and the satisfactory percentage of coarse sizes. The explosive is du Pont Lump Coal C in 2 in. x 6 in. sticks; some 9-in. sticks are used for greater convenience in adjusting the quantity of powder per charge.

Standard drill patterns, as shown in Figures 3 and 4, have been adopted as far as conditions permit, but some variations are of course occasionally necessary. Electric detonators are used and the shots are fired one at a time in the following sequence: Center bottom hole, left-hand bottom, right-hand bottom, top centers, and then the ribs. The powder and caps are taken below on the second shift in an insulated car and delivered to each section, according to the orders received from the day bosses, where they are placed in storage boxes that are located away from track and wiring. The loading is done on two shifts and the shooting takes place on the third shift; with the exception of those having permission to remain inside, all men must be out of the mine during the shooting period.

Timbering

The top directly over No. 3 seam is a friable bedded gray shale varying from 6 in. to 12 ft. in thickness which disintegrates upon contact with air. Above this is a 15-ft. sand rock. The mine roof is weak and its support is further complicated by the fact that much of No. 3 territory is under old workings in the No. 4 seam; the interval between the seams is about 60 ft. and severe weight is encountered when mining under the overlying barrier pillars. Because of the fact that the shale roof will deteriorate, cross-barring must be done as a regular practice, even in the

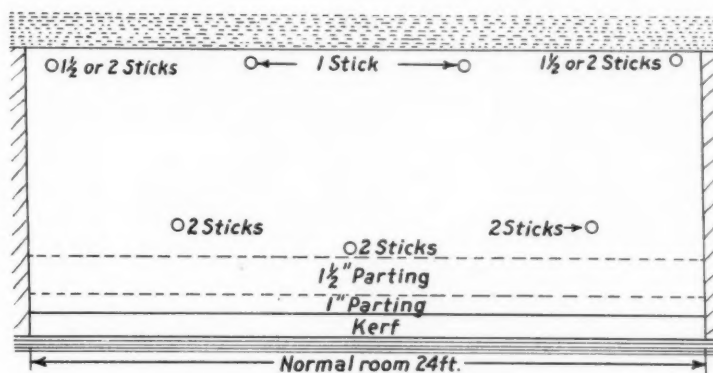


Fig. 2. Drilling pattern for a normal room 24-26 ft.

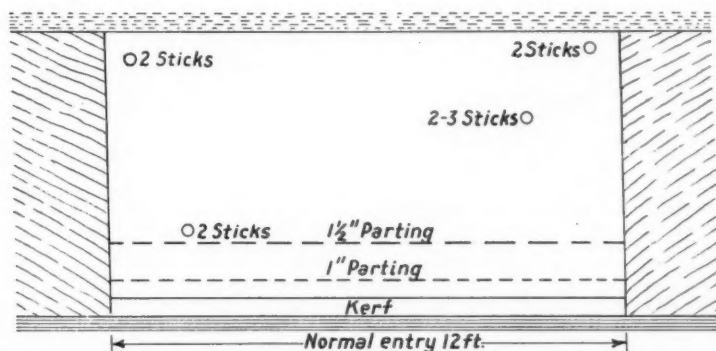


Fig. 3. Entry with four holes normal shooting

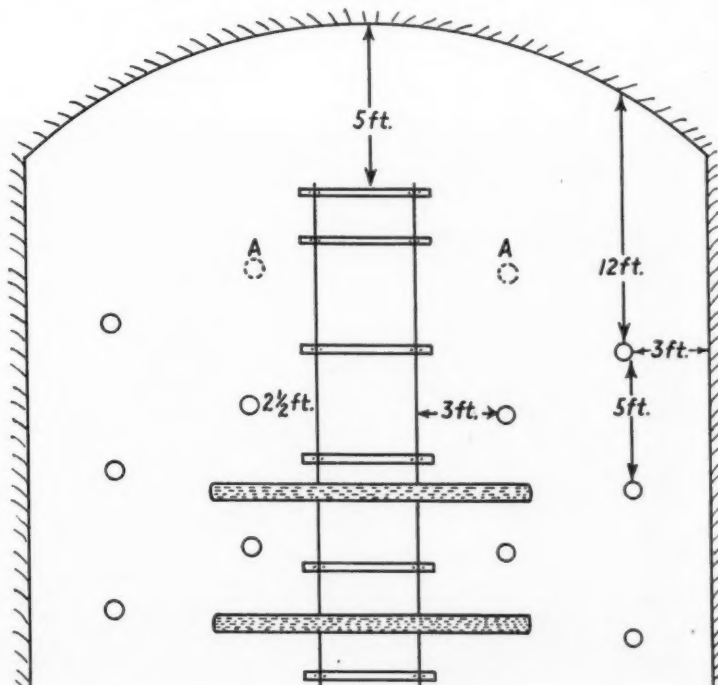


Fig. 4. Plan of systematic timbering in No. 3 seam

entry development, and the magnitude of this job is emphasized by the fact that during 1940 the mine required:

10,634 plain and treated wood cross-bars.
210,000 props and legs.
1,219 tons of steel bars.
1,092,000 cap pieces.

Posts are not used on the main-line haulage on account of clearance. Steel pins made of 60-lb. rail, cut in 5½-ft. lengths, are set in 6-in. holes drilled into the rib near the top of the seam and are anchored in cement with about 12 in. projecting into the entry; the pins are on 5-ft. centers and support 60-lb. rail stringers set parallel to the rib, and those stringers support 90-lb. steel rail crossbars. In the rooms, all workings are cross-barred as the faces advance, using a three-piece set with 11-ft. bars across the track with an extra line of posts between the sets and the rib. The loading machine requires 12 ft. of space back from the face and temporary safety props are placed at the face during the loading. The standard plan room timbering is illustrated in Figure 4.

Power Delivered at 33,000 Volts

In mechanical mining power is one of the major considerations, and adequate voltages are maintained at the working faces to insure efficient operation of the equipment. Purchased power at No. 3 is supplied by the Public Service Company of Indiana, delivered at 33,000 volts; the surface plant—fan, shops, tipples, hoists, etc.—are operated on A.C. either at 2,300 volts or stepped down as required,

SNOW HILL COAL CORPORATION TALLEYDALE LOST-TIME REPORT — MONTH OF _____									
Sec. No.	Number Cars Loaded	Ave. Per Day	Ave. Tons Per Day	TIME LOST ACCOUNT OF					TOTAL
				No Cars	Wrecks & Drifts	Power Trouble	Elect. & Cable	Mach. Reps.	
1									
2									
3									
4									
5									
6									
7									
8									
Total									
Per cent to Total time lost									
Per cent time lost to Total time worked									

Fig. 5. This type of monthly lost-time report is used at Snow Hill

and the underground equipment is on 275 V.D.C. The total connected horsepower load is as follows:

Main fan, including air conditioner	110 hp.
Machine shop	140 hp.
Preparation plant	812 hp.
Main hoist	704 hp.
Water supply	50 hp.
Underground equipment	2,430 hp.
Total	4,246 hp.

Power for the underground equipment is carried by 500,000 C.M. three-conductor metallic-sheath cable down the main hoisting shaft and from that point is split and distributed over 4 miles of 2/0 and 4/0 three-conductor all-rubber insulated cables to three underground substations—300 kw. in the main west, 500 kw. in the main south, and 300 kw. in the main north.

There is also a 200-kw. on the surface. The west substation is chiefly for main haulage and the other two stations each supply power for three loading units and have approximately the same load—three cutting machines, three mechanical loaders, three drills, three service and three relay locomotives.

The positive line from the station consists of a 1,000,000 C.M. feeder and a 4/0 trolley; the return is through the track with both rails bonded and 650,000 C.M. bare conductor. This circuit goes as far as the split to the last loading panel, a distance which seldom exceeds 2,500 ft., and from there a 500,000 C.M. feeder with a 4/0 trolley is taken to the first cross-cut of the room entries. Two 4/0 trolleys, one on each entry,



Operating the bottom cutter in the No. 3 seam

carry power to the rooms. These standards are occasionally varied as conditions demand.

Care and Recovery of Materials

For efficient operation it is necessary to maintain a plentiful supply of all classes of material at the working faces, and the very fact of having plentiful supplies is apt to promote waste and loss. The care of these materials is one of the fundamental duties of the section bosses and, in order to assist them in this duty, the following four fundamental procedures are followed:

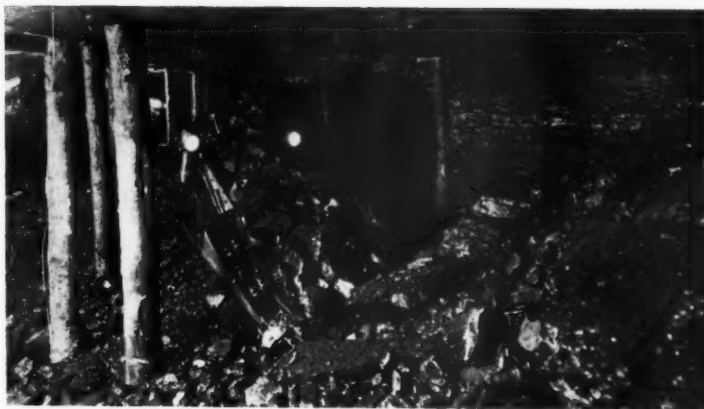
(1) *The education of each man on the crew as to the dollars-and-cents value of each item of material used.*

(2) *Good housekeeping in the handling, storage, and use of all materials throughout the mine.*

(3) *The prompt removal of all reclaimable and useful material from completed working faces and its prompt transfer and reuse in active workings.*

(4) *Standardization of sizes in order to eliminate cutting and to provide materials that are suitable for re-use in other locations.*

The enforcement of the first two



Another view of the Goodman No. 360 track loader

items is largely the matter of education and discipline applied both to the men and the bosses, while the last two are strictly company matters. Men are regularly employed on the day and night shifts for the recovery of material from the completed working places; the electricians remove feeder lines, trolley wires, bonds, etc.,

and a crew of four men collect rail, ties, and timber. The average amount of material salvaged by two men on a shift has been 2 switches, 80 ties, 20 rails, 25 crossbars, 75 timbers, and 400 cap pieces. This amount, of course, varies according to roof conditions, and in the timber removal great care is taken to avoid accidents.

American Mining Congress Coal Division Will Hold 8th Annual Conference

COAL OPERATORS and equipment manufacturers from all fields are invited to meet at the 8th Annual Conference of the Coal Division of the American Mining Congress to hear and discuss the committee reports on mine operating problems.

The Conference, to be held at Pittsburgh, Pa., on Tuesday, December 1, will follow the established program. After a brief opening session at 10 o'clock, the committees will go into separate meetings where the members will put the final touches on their reports, which in the afternoon will be presented to the general session and discussed by all present.

The Annual Dinner Tuesday night will be the usual

informal gathering and it is planned to have a speaker of national importance who will talk on the relation between coal mining and the war effort.

The purpose of the afternoon session is to bring all of the committees together to permit coordination of the various studies to give the greatest possible service to the coal industry. In spite of the wartime pressure on operating and manufacturing personnel, the committee members have taken time during the past year to collect and compile much valuable data and a number of illustrated presentations will be made on the subjects of power, haulage, belt conveyors, supervision, roof support and safety.

10:00 A.M. OPENING SESSION—DECEMBER 1, 1942

Following brief opening addresses, the committees will go into separate meetings.

1:00 P.M. GENERAL CONFERENCE—

Presentation and Discussion of Committee Reports

COMMITTEE ON MECHANICAL LOADING—

S. M. CASSIDY, Chairman
Supervisory Organization Plans

COMMITTEE ON CONVEYOR MINING—T. F.

McCARTHY, Chairman
Belt Conveyors for Underground Gathering

COMMITTEE ON HAULAGE ROADS—R. V.

CLAY, Chairman
Material and Labor Costs for Service Haulage Tracks

COMMITTEE ON UNDERGROUND POWER—

C. C. BALLARD, Chairman
Underground Wiring for Conveyor Mining Systems

COMMITTEE ON ROOF SUPPORT—F. G. SMITH, Chairman

Characteristics of Mine Roofs—Roof Breaks in
Pillar Mining

COMMITTEE ON SURFACE PREPARATION—

T. W. GUY, Chairman
Studies on Screening and Cleaning

COMMITTEE ON STREAM CLARIFICATION—

J. W. WOOMER, Chairman
Factual Data on Mine Drainage

COMMITTEE ON VENTILATION—W. E. HOUS- MAN, Chairman

Study on Mine Ventilation

COMMITTEE ON SAFETY—L. C. CAMPBELL, Chairman

Aims and Purposes of Safety Committee

6:30 P.M. ANNUAL DINNER

HARRY M. MOSES, Toastmaster
Address: Speaker to be announced



Coal Division Reports

Belt Conveyors for Underground Gathering Haulage

COAL MINING is largely a matter of transportation and after a face is shot down the operation then becomes one of moving the coal from that point to the tippie. The last stage of the transportation is, with very few exceptions, accomplished by mine cars and, in general, car haulage is found to be the most economical method for moving coal in large quantities over long distances underground. However, in mechanical mining a difficult transportation problem occurs between the mine cars and the loading unit at the face, and whether the loading is done by conveyor, hand shoveller, duckbill or mobile machine, the success of this operation is largely determined by the efficiency of the gathering haulage. Theoretically, the coal should be put into mine cars as soon as possible but in practice there are a number of factors which often make it uneconomical to bring mine cars close to the working faces, and in such cases some method of intermediate transportation must be used.

Belt conveyors have become quite widely adopted for this class of gathering service and the Committee on Conveyor Mining, through a subcommittee under the chairmanship of Carel Robinson, is making a study of underground belts. As previously announced in the January MINING CON-

A Preliminary Report, Based on Actual Operation, Prepared by the Subcommittee on Underground Belt Conveyors

GRESS JOURNAL, the first step in this study is to collect data on a number of typical installations and a summary of 10 reports are given in this article.

These 10 reports show a variety of conveyor mining plans and probably cover most of the ways in which gathering belts are now being used. Several methods of belt loading are illustrated; by chain and shaking conveyors with multiple loading points, by shuttle cars with feeder conveyors and also shuttle cars loading directly onto the belt. The belt discharge points include mine-car trips, main-line belts and, in No. 5, a tippie bin. The installations have a range of conveying lengths from 470 to 2,200 ft.; belt widths from 24 to 36 in. with various specifications for the fabric construction and the rubber covering.

It will be noted that the belt speeds are generally around 200 ft. per minute, with the exception of Mine No. 5, which operates at an exceptionally

high speed of 480 ft. per minute. This was done to increase the belt capacity, not particularly for the purpose of carrying a high daily tonnage but to take care of the load peaks which occur by reason of the shuttle car discharging directly onto the belt. It is reported that this high speed has proven satisfactory. The other shuttle operation shown in Mine No. 4 uses a feed conveyor between the shuttle and the belt.

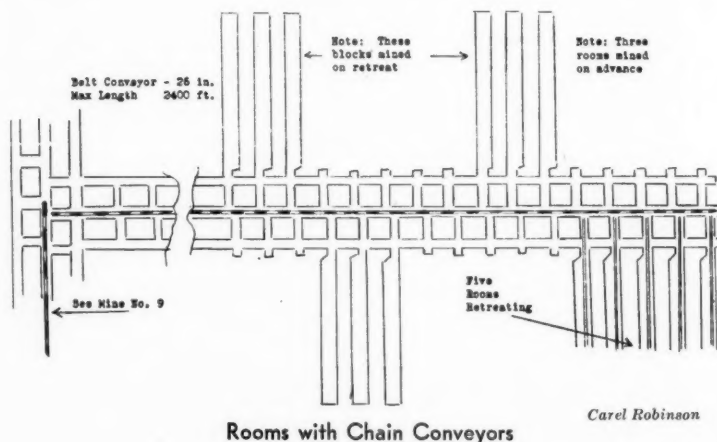
The committee plans to compile data on belt performance, causes of belt failure, and also to prepare recommendations on methods of installation, ways to prevent wear, and certain details to be observed in maintenance and operation. However, there has not yet been sufficient time to study the information gathered, so this article is presented as a committee progress report and to illustrate the different types of belt conveying used with various systems of mechanized loading.

Mine No. 1

Room mining with 5 chain conveyors loading directly onto the gathering belt which in turn discharges onto a conveyor in the main entry (see Mine No. 9). Maximum gathering belt length is 2,400 ft. Blocks of three rooms are driven as the entries advance, to provide development tonnage.

GENERAL DATA

Width of belt—26 in.
Type of belt—Trough
Belt fabric—4 ply
Thickness of rubber top—3/16 in.
Thickness of rubber bottom—1/16 in.
Grade of rubber—20/24 friction
2,500/3,000 tensile
Belt speed—240 ft. per min.
Coal capacity—145 tons per hour



Rooms with Chain Conveyors

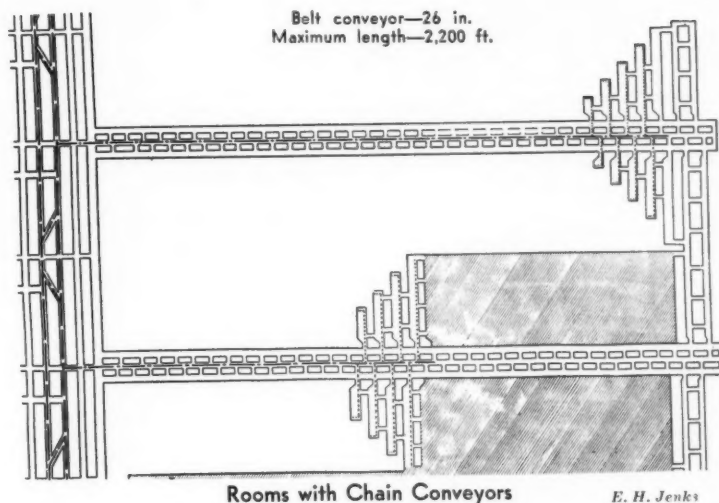
Carel Robinson

Mine No. 2

Room mining with 8 chain conveyors loading directly onto an entry belt which takes the coal to the mine car haulage at the panel intersection. Maximum belt length is 1,800 ft. for a dip heading and 2,200 ft. for a raise heading. The average grade is 1½ percent with maximums of 5 percent.

GENERAL DATA

Width of belt—26 in.
Type of belt—Trough
Belt fabric—5 ply, 1.95 lb.
Thickness of rubber top—½ in.
Thickness of rubber bottom—1/32 in.
Grade of rubber—B
Belt speed—180 or 280 ft. per min.
Coal capacity—140 tons per hour

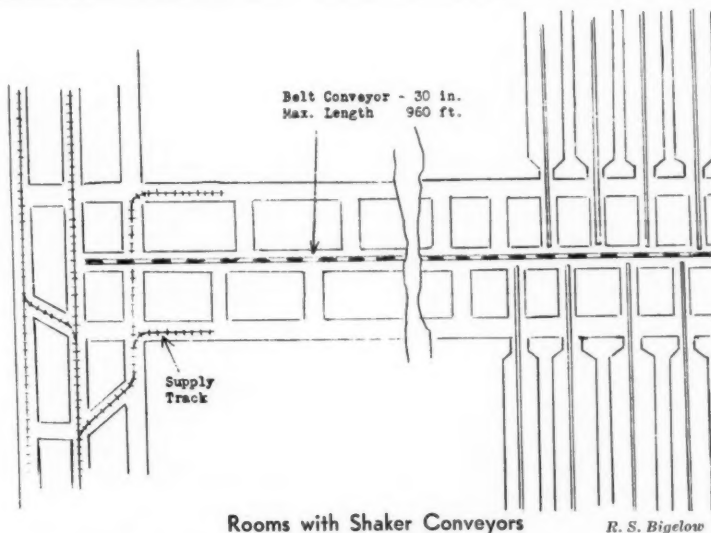


Mine No. 3

Room mining with 8 shaker conveyors, each loading directly onto an entry belt which takes the coal to mine cars at the panel intersection. Maximum belt length is 960 ft., which is shortened periodically as the rooms retreat. Grade is practically level.

GENERAL DATA

Width of belt—30 in.
Type of belt—Trough
Belt fabric—5 ply, 23 oz.
Thickness of rubber top—½ in.
Thickness of rubber bottom—1/32 in.
Grade of rubber—16/19 friction
1,400/2,000 tensile
Belt speed—240 ft. per min.
Coal capacity—180 tons per hour

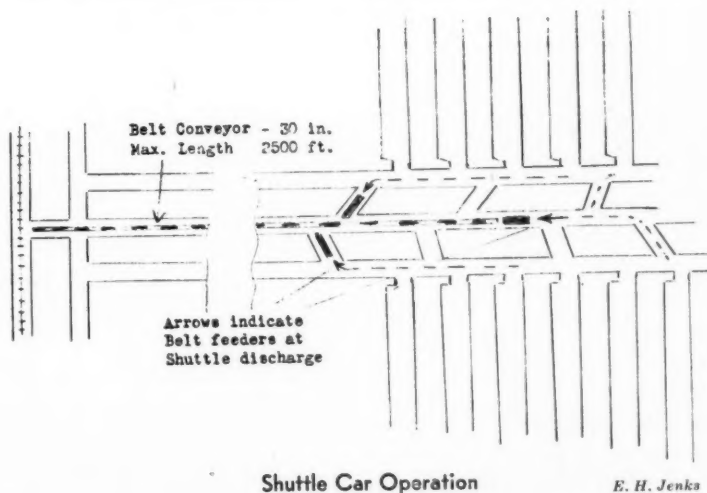


Mine No. 4

Room mining with shuttle cars that empty into short feeder conveyors loading the entry belt which takes the coal to mine cars at the panel intersection. The feeders are moved as the mining advances and retreats. Maximum belt length is 2,500 ft.; average grade is 8 percent with maximums of 15 percent.

GENERAL DATA

Width of belt—30 in.
Type of belt—Trough
Belt fabric—5 ply, 2.36 lb.
Thickness of rubber top—½ in.
Thickness of rubber bottom—1/32 in.
Grade of rubber—B
Belt speed—180 or 250 ft. per min.
Coal capacity—200 tons per hour

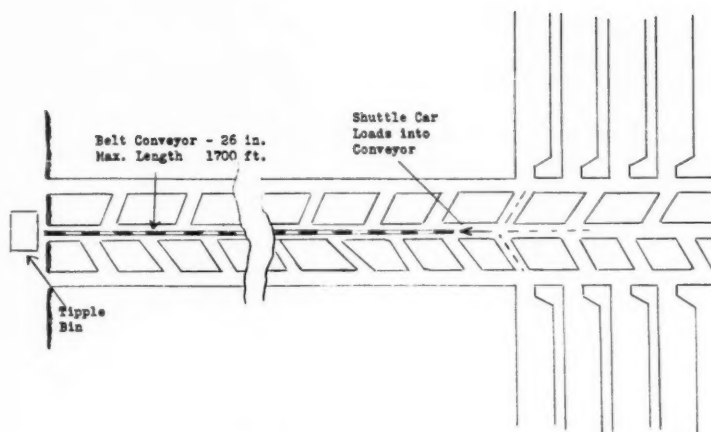


Mine No. 5

Room mining with shuttle cars that load directly onto a chute at the end of the belt conveyor—the shuttle discharge being in the same direction as the flow of the coal on the conveyor. The maximum belt length is 1,700 ft. and is laid on an entry which leads outside and loads directly into the tipple bin.

GENERAL DATA

Width of belt—26 in.
Type of belt—Trough
Belt fabric—4 ply
Thickness of rubber top— $\frac{1}{8}$ in.
Thickness of rubber bottom— $\frac{1}{32}$ in.
Grade of rubber— $\frac{16}{19}$ friction
1,400/2,000 tensile
Belt speed—480 ft. per min.
Coal capacity—300 tons per hour



Shuttle Car Operation

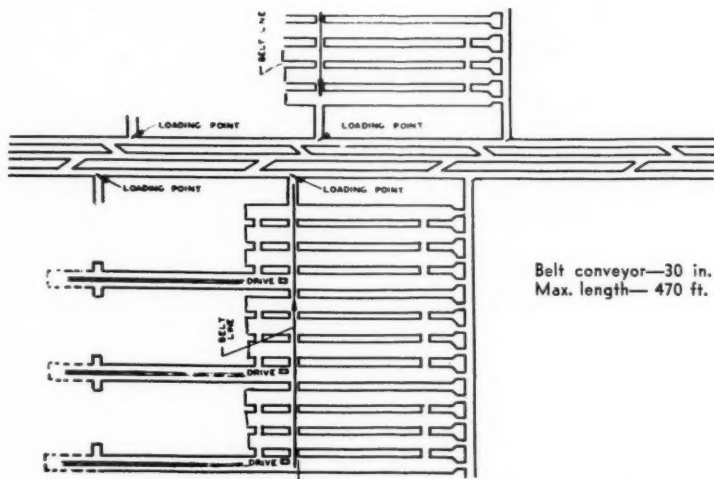
Carel Robinson

Mine No. 6

Room mining with 3 shaker conveyors loading directly onto a gathering belt which takes the coal to the mine car haulage at the panel intersection. Maximum belt length is 470 ft. long which, as shown on the sketch, is moved ahead to the next location when the block of twelve rooms is completed.

GENERAL DATA

Width of belt—30 in.
Type of belt—Trough
Belt fabric—4 ply, 32 oz.
Thickness of rubber top— $\frac{1}{8}$ in.
Thickness of rubber bottom— $\frac{1}{32}$ in.
Grade of rubber— $\frac{16}{19}$ friction
1,400/2,000 tensile
Belt speed—200 ft. per min.
Coal capacity—150 tons per hour



Rooms with Shaker Conveyors

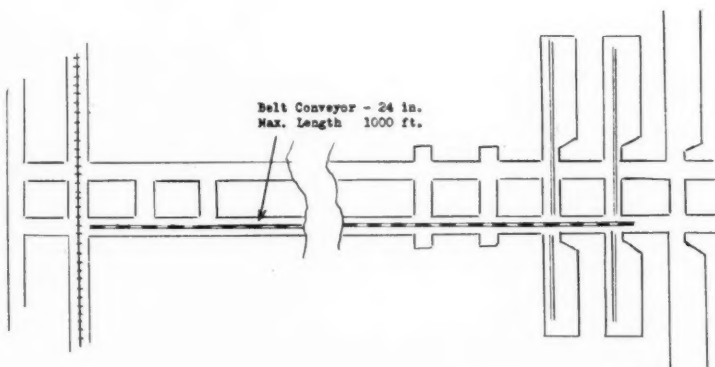
R. S. Bigelow

Mine No. 7

Room mining with 4 shaker conveyors loading directly onto an entry belt which takes the coal to the mine car haulage at the panel intersection. Maximum belt length is 1,000 ft. which is shortened periodically as the rooms retreat.

GENERAL DATA

Width of belt—24 in.
Type of belt—Flat
Belt fabric—4 ply, 32 oz.
1 ply 33 oz.
Thickness of rubber top— $\frac{1}{8}$ in.
Thickness of rubber bottom— $\frac{1}{16}$ in.
Grade of rubber— $\frac{16}{19}$ friction
1,400/2,000 tensile
Belt speed—210 ft. per min.
Coal capacity—125 tons per hour



Rooms with Shaker Conveyors

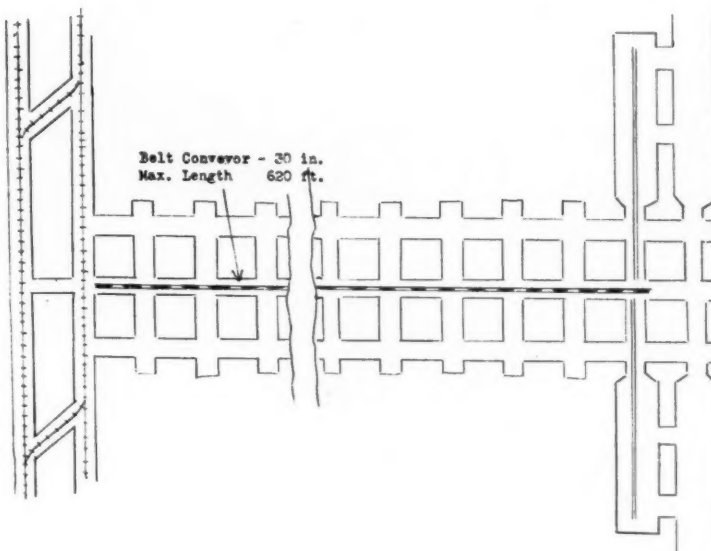
R. S. Bigelow

Mine No. 8

Room mining with 2 shaker conveyors working to the right and left and loading directly onto an entry belt which takes the coal to the mine car haulage at the panel intersection. Three headings are driven on development and the maximum belt length is 620 ft. Grade is about level.

GENERAL DATA

Width of belt—30 in.
Type of belt—Trough
Belt fabric—5 ply, 28 oz.
Thickness of rubber top— $\frac{1}{8}$ in.
Thickness of rubber bottom— $\frac{1}{32}$ in.
Grade of rubber—16/19 friction
1,400/2,000 tensile
Belt speed—210 ft. per min.
Coal capacity—200 tons per hour



Rooms with Shaker Conveyors

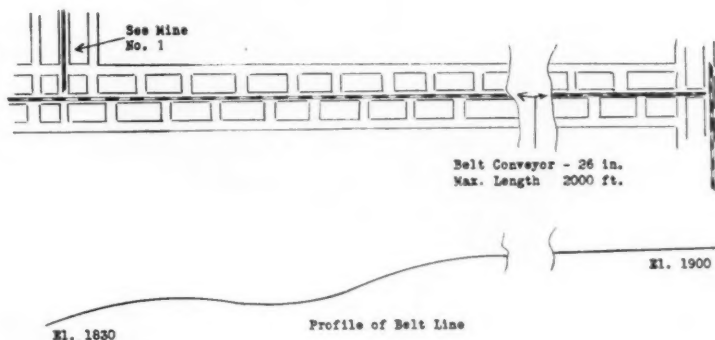
R. S. Bigelow

Mine No. 9

A main conveyor which receives coal from a room entry conveyor as described in Mine No. 1. The belt length is now 1,100 ft. but will be extended to 2,000 ft. as the development advances. Grades are heavy, varying from $+18^\circ$ to -15° . This belt discharges onto another main belt which takes the coal outside to the tippie.

GENERAL DATA

Width of belt—26 in.
Type of belt—Trough
Belt fabric—4 ply
Thickness of rubber top— $\frac{3}{16}$ in.
Thickness of rubber bottom— $\frac{1}{16}$ in.
Grade of rubber—20/24 friction
2,500/3,000 tensile
Belt speed—240 ft. per min.
Coal capacity—145 tons per hour



Main Entry Belt

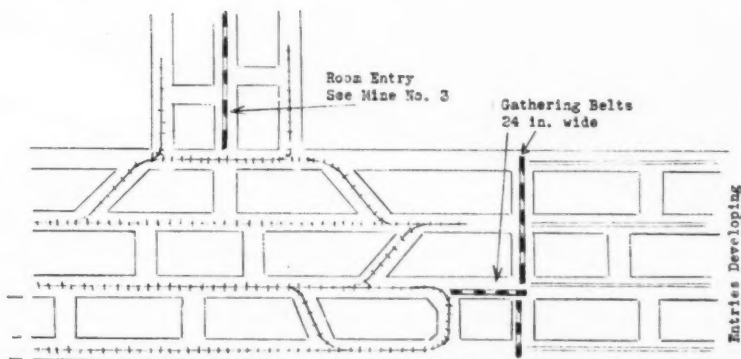
Carel Robinson

Mine No. 10

Entry development with 4 shaker conveyors discharging directly onto two short belt conveyors laid in break-throughs, which in turn discharge onto a short main belt conveyor—47 ft. long—that elevates and loads coal into mine cars. The loading point and track are moved ahead periodically as the shaker conveyors reach their limit of 300 ft.

GENERAL DATA

Width of belt—24 in.
Type of belt—Flat
Belt fabric— $\frac{1}{4}$ ply, 32 oz.
1 ply, 33 oz.
Thickness of rubber top— $\frac{1}{8}$ in.
Thickness of rubber bottom— $\frac{1}{16}$ in.
Grade of rubber—16/19 friction
1,400/2,000 tensile
Belt speed—160 ft. per min.
Coal capacity—90 tons per hour



Entry Development with Shaker Conveyors

R. S. Bigelow

PLEASE HELP FILL THE GAP

**PUBLIC
STEEL
SCRAP**

**PIG
IRON**
smelted from
ORE

**STEEL
MILL
SCRAP**

STEEL MAKING FURNACES
Open Hearth, Electric, Bessemer

FORGES

ROLLING MILLS

LIGHT FORGINGS
Aircraft Cylinders
Aircraft Connecting Rods
Breech Rings
Pistons for Diesel Engines
Parts for Combat Vehicles

HEAVY FORGINGS
Armor for Warships
Guns
Demolition Bombs
Turbine Rotors
Ship Shafting

PLATES
Ship Hulls
Tank Armor
Field Artillery
Cartridge Cases

WIRE, WIRE RODS
Bullet Cores
Fragmentation Bombs
Camouflage Netting

STRUCTURAL SHAPES
Ship Hulls
Cars for Railway Guns
Pontoon Bridges

BARS
Aircraft Engine Parts
H.E. Shells
Bayonets
Rifle Barrels

PIPE AND TUBING
Trench Mortars
Aircraft Frames
Refueling Racks

TIN, TERNE AND BLACK PLATE
Gas Masks
Ration Cans
Cartridge Boxes

SHEETS
Helmets
Mess Kits
Submarine Net Buoys

Here is the flow chart from Raw Material to War Material.

There is one big gap in the process—public steel scrap. In normal times there is enough, but today scrap piles are low, and winter with its frozen waterways and overloaded railways looms near.

You can help. The steel-makers need 6,000,000 tons of scrap in the immediate future. Before this appears in print, thousands of collection drives will have done good work. But the furnaces are ever hungry.

Gather up every pound of steel scrap you can find, in your home, your office, your factory. Give or sell it to the nearest outlet. If you can't find an outlet, write us.

Some day there'll be a final bullet. Your scrap metal may be the one to make it.

BETHLEHEM STEEL COMPANY
General Offices: Bethlehem, Pa.





Wheels of Government

As Viewed by A. W. Dickinson of the American Mining Congress

KEYNOTE OF EFFORT today centers around manpower for the proposed seven and one-half million-man army and for the production of munitions which must be forthcoming to supply it. The authorization by Congress to draft 18 and 19 year olds will be a substantial help in the manpower need. It has become apparent that the gold mine shut-down order was only a dramatic—and largely futile—gesture preceding the sounder policy of furloughing soldier-miners for return to the mines. Evident still is official resistance against bringing in thousands of readily available trained miners from Mexico although the shortage in agricultural labor on the Pacific coast and in the Southwest has been met in slight degree by the importation of some 3,000 farm workers.

A Whopping Tax Bill

Adding to the \$17 billion in revenue available under previous laws the Revenue Act of 1942 brings \$7.9 billion (plus \$1½ billion subject to post-war refund) to the war chest of the nation. Passing the Senate on October 10 the bill was reported by the conferees October 17, approved by the Senate and House October 20 and signed by the President October 21, in time to make the excise tax levies effective as of November 1. Treasury proposal for an additional \$6 billion levy will not be considered until March, 1943, according to a statement made by Senate Finance Committee Chairman George.

An interesting feature included in the 1942 tax law is the authority granted to the Joint Committee on Internal Revenue Taxation to secure information direct from the departments of the Government. The demand for this authority arose as the result of considerable confusion in the present and previous years over estimates of revenue yield presented to the committees of Congress by the

★★★★★★★★★★★★★★★★

Washington Highlights

MANPOWER: 7,500,000 Army goal.

1943: Six billion more in taxes coming up.

VICTORY TAX: Uncle Sam will take 5 percent of your gross income.

WASTING ASSETS: Special tax problems recognized.

FREIGHT TAX: 4 cents per ton on coal shipments.

INTENT OF CONGRESS: "Gross income from the property" clarified.

GOLD MINE SHUTDOWN: Not result a fizzle to the war effort.

WAGE-HOUR ACT: Not fitted to war needs.

WAGE BOOST: Utah and Idaho miners get \$1.00 per day more.

MINE MACHINERY MANUFACTURERS: Face shut down or conversion.

P-56: Gets highest non-military priority rating.

PRP: Mine operators need simplification of order.

SOLDIER-MINERS: Marching back to mines.

★★★★★★★★★★★★★★★★

Treasury Department. The Joint Committee is a congressional agency functioning in an advisory capacity to the Senate and the House.

From the viewpoint of mineral producers outstanding features in the bill include the 40 percent combined normal and surtax rates, the 90 percent excess profits tax rate with a 10 percent post-war refund, and the 80 percent over-all limitation on total taxes. The \$5,000 specific exemption from excess profits tax was retained.

The amendment by Senator Vandenberg, of Michigan, freezing social security taxes at 1 percent for 1943 on both employers and employees survived and is in the law. Also contained is the 5 percent "Victory Tax" on gross incomes, in addition to other taxes, subject, however, to post-war refund of 25 percent to single men or 40 percent to married men, which may be used as a credit in whole or in part against payments on insurance premiums or on indebtedness.

Important to mining companies with their fluctuating earnings is the inclusion of the two year "carry-back," both for net operating losses and for unused excess profits credit. This supplements the two year "carry-forward" which is also in the law.

Making the relief provisions of the law retroactive to 1940, the approved act also contains the 75 percent automatic relief provision under which earnings of the lowest base period year (1936-1939) may be computed as equivalent to 75 percent of the average of the three best years.

Safe are the percentage depletion provisions of the law with the addition of the Disney amendment providing an annual election for percentage depletion; also included now are fluorspar, rock asphalt and ball and sagger clay at a 15 percent rate.

As modified by the Treasury, the Johnson amendment is in the law and provides a measure of relief for producers who have increased their output. Also included is the coal and iron supplement with the addition of logs and lumber under which exemption from excess profits tax is granted for one-half of the unit net income for the increased production. Likewise in the law is the excess profits tax exemption of bonuses for over-quota production of copper, lead and zinc.

Restored to the law is the exemption of income attributable to domestic mining of the seven strategic minerals as granted in 1940, with four additional minerals added this year by the Senate. The exempted min-

erals now include antimony, chromite, manganese, nickel, platinum, quicksilver, sheet mica, tantalum, tin, tungsten and vanadium. This constructive action definitely justifies the efforts for the restoration of this exemption which were made in 1941 as well as in the present year.

Although strongly disapproved by the Treasury and the Office of Price Administration the excise tax on freight is included in the act at 3 percent, with a flat rate of 4 cents per ton on shipments of coal. It should be particularly noted that the effective date for this tax is December 1, 1942.

In amending the war contract renegotiation provisions of the law, the Senate added a section which provides complete exemption from renegotiation for any product of a mine, oil or gas well, or other mineral or natural deposit, or timber which has not been processed, refined or treated beyond the first form or state suitable for industrial use.

"Gross Income from the Property"

When Republican Senator John Thomas, of Idaho, placed percentage depletion for mines in the Revenue Act of 1932 and the Treasury Department wrote the administrative regulations, the doughty Senator and his colleagues in the Congress had the very definite idea that the ordinary ore treatment processes performed by the mine operators were to be considered as a part of the mining operation, and that the cost thereof should not be deducted in computing the "gross income from the property." Senator Thomas knew that the Bureau of Internal Revenue has recently sought to disallow some of the treatment processes, thereby reducing the computed depletion. While the revenue bill was under debate he engaged in a discussion on the Senate floor with Finance Committee Chairman George and Senator Edwin C. Johnson, of Colorado, in the course of which he inquired whether any change was proposed in the original understanding. Senator Johnson replied that he had discussed the matter with Treasury General Counsel Randolph Paul and gave assurance that no change was contemplated in the regulations and procedures originally adopted by the Bureau of Internal Revenue and followed for many years. He stated that gravity flotation and concentration, or equivalent processes, were included in the mining operation and he said further that the furnacing of quicksilver ores, as an example, had been considered as an equivalent of gravity or flotation concentration.

This exchange of views by the Senators while the Revenue Bill of 1942 was under debate makes a clear record of the intent of Congress not to

approve Treasury regulations or bureau practices which depart from the original understandings under the 1932 and 1934 acts.

Gold in U. S. and Canada

In a quick move on October 8 the War Production Board ordered gold producing mines not having P-56 serial numbers to cease operation in the shortest possible time and to stop breaking ore in any case by midnight, October 15. A 60-day clean-up period was granted where necessary, after which only the minimum of maintenance work is permitted. Very small lode and placer mines treating not more than 100 tons of ore or 100 cu. yds. of gravel per month are exempted. Immediate efforts were made by the War Manpower Commission and the U. S. Employment Service to place the idle gold miners in the copper mines but it is evident that the net result in manpower will fizzle to only three or four hundred men from this source.

In Canada, it is stated, there are still 23,000 men working in and around the gold mines as compared with 32,000 in 1941. Three months ago the Premier of Canada ordered a curtailment of non-essential industries and there has been no expansion in gold production since that time. It is understood that the Canadians do expect to transfer more of their gold miners to the critical and strategic metal mines but apparently no drastic stop-order is anticipated.

Mine Labor

The War Labor Board grant of a \$1 a day increase to Utah and Idaho zinc and lead miners was approved on October 23 by Economic Stabilization Director James F. Byrnes; also approved was the award of increases ranging from 2½ cents to 12½ cents an hour to seven of the American Smelting & Refining Company plants, as well as an added 25 cents a day for common labor at the Bunker Hill smelter. In a letter to War Labor Board Chairman Davis, Director Byrnes stated that he had been assured by Price Administrator Henderson that the wage increases would not cause an increase in the ceiling price of copper, lead or zinc and that any part of the wage increases not absorbed by the non-ferrous metal companies would be met by the Metals Reserve Company. Early action is anticipated by the OPA regarding revision of production quotas and premium price payments.

In the belief that these wage increases will not materially assist in the manpower shortage at the mines, mills and smelters, Senators of mining states further urged upon the War Manpower Commission and the President the importance of enlisting

the services of the many hundreds of readily available skilled miners from Mexico.

Beginning October 15 the War Department began the furloughing of some 4,000 soldier-miners for return to the mines producing copper, zinc, tungsten and molybdenum. The furloughed men have been sent to Fort Douglas, near Salt Lake City, Utah, and to Camp McCoy, at Sparta, Wis. At these points employment agents from the mining companies are interviewing the furloughed soldiers and the U. S. Employment Service arranges their transportation to the mining communities. It is understood that over 2,000 men have already been returned to the mines.

Wage-Hour and Overtime

Representative Ramspeck, of Georgia, ranking Democrat on the House Labor Committee, has introduced an amendment to the Fair Labor Standards Act which would allow a workweek as high as 56 hours at straight time pay. Such an arrangement would be permitted only for the duration of the war and only as the result of agreement with collective bargaining agents "certified as bona fide by the National Labor Relations Board." The Congressman has stated that he believes organized labor will not oppose his amendment and that he has offered it in hope that it may save many of the smaller industries in the present emergency.

Administrator Walling, of the Wage Hour Division, has made the announcement that his field agents have been instructed to confine their inspections of pay roll records to the period beginning October 24, 1940, when, under the act the standard workweek reached the 40-hour basis. It will be remembered that previously inspections leading towards the restitution of back wages were made from October, 1938, the effective date of the act.

In late October the United States Supreme Court denied review of its 5-4 decision in the case of the A. H. Belo Corporation, a Dallas, Tex., publisher. This is the case wherein the publishing company contracted with each of its employees for a basic hourly rate of pay, for one and one-half times that rate for all hours over 44, 42 or 40 a week, with a guaranteed weekly wage equal to the previous weekly salary. The Wage Hour Administration had attacked this procedure as an evasion of the law and argued that the weekly guarantee fixed the basic rates, and that the hourly rates named in the contracts were so computed as to avoid any increase in the company's wage cost even though it continued to work its employees more than 40 hours per week.

(Continued on page 65)

Cracking Hard Rock on "The Hill"

Mining Congress Journal will furnish readers, upon request, with the official Government statements on any of these brief summarized announcements.

METAL MINING

Copper from Idle Stocks Aids War Plants. War Production Board. Transfer of copper from idle and excess inventories to producers needing it for the manufacture of implements of war is aiding hundreds of war plants to maintain schedules and, in many instances, is preventing complete shutdowns when emergency shortages occur.

Ferro-Alloys Branch Formed. War Production Board. A Ferro-Alloys Branch, combining the former Nickel, Tungsten and Manganese-Chrome Branches has been formed.

3 Indicted in Illegal Acquisition of Metal. War Production Board. Federal Grand Jury indictments were returned charging three men associated with the firm of Tyne Co., 3228 Filmore Street, Chicago, with improperly extending priority ratings and issuing false certifications to obtain large amounts of metal.

War Industry Borrowing All "Free" Silver. War Production Board. All "free" silver held by the Treasury either has been loaned to war industry or commitments have been made for its use, A. I. Henderson, Deputy Director General for Operations, has announced.

WMC Lists Non-Ferrous Metals. War Manpower Commission. Chairman McNutt announced that WMC's employment stabilization plan of 1942, covering non-ferrous metals and lumbering activities in the 12 Western States, includes all mines producing ores from which 21 metals are produced.

Silver Used for Copper in Electrical Conductors. War Production Board. Twenty-four million pounds of copper have been saved in the last few months by substituting silver for copper in electrical conductors.

Gold Mines Told to Halt Operations. War Production Board. In order to make manpower available for mining operations more essential to the war program, Order L-208 requiring gold mines to cease operations at the earliest possible date, and at the latest to stop breaking out new ore within seven days, was issued October 8.

Lead Reported in Good Supply. War Production Board. Sustained domestic production of lead, plus imports substantially greater than normal, are supplying all war needs and building a Government stockpile, Chief Vogel-sang, of the Tin and Lead Branch revealed. St. Joseph Lead Company reduced its premium price of chemical lead from \$2 to \$1 per ton above the price of common lead on October 19.

Manganese Situation Summarized. War Production Board. Summary of the situation in manganese, inadvertently omitted from WPB release 1995, issued October 12, which outlined current problems in all important steel alloying elements.

Control Over Use of Arsenic Tightened. War Production Board. Control over the use of arsenic is tightened by Order M-152.

WMC to Aid Gold Workers in Finding New Jobs. War Manpower Commission. Gold mine production and maintenance workers, released by WPB Order L-208, closing gold mines, will be given positive and immediate aid in finding work in copper and other vital non-ferrous industries, Chairman McNutt announced.



...JIM BERRYMAN, EVENING STAR, WASH., D. C.

NON-METALLIC MINING

Cryolite Placed Under Complete Control. War Production Board. Cryolite is put under complete allocation and use control by Order M-198, effective October 1.

Phosphate Rock Regulation Issued. Office of Price Administration. Elimination of the uneven price structure prevailing for the Florida and Tennessee phosphate rock industry as well as provision for more adequate production of the higher grades of this important fertilizer material are provided in Maximum Price Regulation 240, effective October 19.

COAL MINING

Alaska Soft Coal Exempted from GMPR. Office of Price Administration. Bituminous coal produced in Alaska is exempted from the General Maximum Price Regulation by Amendment 29 to Supplementary Regulation 1, effective September 30.

Solid Fuel Dealers Given Relief. Office of Price Administration. Solid fuel dealers who have sustained recent increases in cost for individual kinds and sizes of coal and other solid fuels may, within certain limitations, pass on the increased cost, under Amendment 8 to Maximum Price Regulations 122.

Ickes Affirms Raising of Soft Coal Floor. Department of the Interior. Secretary Ickes has issued an order and opinion affirming, on all questions of law and policy involved which he reviewed, an order by Director Wheeler

of the Bituminous Coal Division, providing for a general upward revision of minimum prices at the mine for the nation's bituminous coal.

8 Soft Coal Mines Get Adjustments. Office of Price Administration. Price adjustments on bituminous coal produced in eight Central Illinois mines were authorized in order to allow the mines to continue production of certain sizes and prevent a local shortage, by Amendment 23 and Orders 58, 59, and 60 to the Maximum Price Regulation 120.

Coal Barge Rates Continued. Office of Price Administration. Temporary maximum prices applicable to the transportation of bituminous coal by barge from Hampton Roads to New York and New England, and from New York to New England, established August 1, were continued in effect until December 2 by Amendment 36 to Supplementary Regulation 14.

Users to be Advised on Stockpiling Coal. U. S. Bureau of Mines. To assist commercial coal users in minimizing storage losses, the Division of Solid Fuels Utilization for War is organizing a group of experts to advise industries on best methods of stockpiling coal to avoid spontaneous heating and degradation of the stored product.

Coal Mining Industry Hiring Women. Office of Solid Fuels Coordinator. Coordinator Ickes said that the coal mining industry, faced with a shortage of manpower, has begun to hire women to keep pace with the nation's expanding wartime fuel requirements.



"SHHH! THERE ARE LADIES PRESENT—I THINK!"

One western coal mining company which employed 1,894 mine workers from the period December 27, 1941, to October 3, 1942, inclusive, had among this number 22 women. Eleven worked as slate pickers on mine tipples and 11 in machine shops. Women are also being employed for similar work by coal mining companies in the East.

5 Iowa Coal Mines Given Adjustments. Office of Price Administration. Price adjustments averaging about 35 cents a ton on bituminous coal are authorized for five coal mines in Iowa to prevent a local shortage of fuel, by Order 63 under Maximum Price Regulation 120.

OPA Acts to Speed Lignite Adjustments. Office of Price Administration. To avert a threat of fuel shortages in the Mountain West, OPA acted to speed price adjustments on lignite from small truck mines, by Amendment 7 to Maximum Price Regulation 121.

New England Coal Shipments Up. Office of Solid Fuels Coordinator. Shipments of coal into New England by all-rail routes increased 479 carloads or approximately 26,345 tons in the week ending October 17 as compared to the preceding week, Coordinator Ickes said.

EQUIPMENT AND SUPPLIES

High Alloy Castings Ceilings Set. Office of Price Administration. Ceilings for high alloy castings are established at levels prevailing between October 1 and 15 by Maximum Price Regulation 214, effective September 7.

Manila Cordage Order Amended. War Production Board. Manila cordage may now be purchased for permitted uses without specific authorization of the Director General for Operations, under Amendment 1 to Order M-36 as amended.

Wooden Mine Materials Prices Raised. Office of Price Administration. The maximum selling prices for wooden posts and certain other lumber products used in mines are raised by an average of 20 percent by Maximum Price Regulation 218 (Central Appalachian Wooden Mine Materials).

Copper Violations Bring Suspension. War Production Board. All priority assistance and allocations of restricted materials are withdrawn from the Florida Pipe and Supply Co., Jacksonville, for three months, as a result of violations of WPB's copper conservation program, by Order S-100, effective September 14.

Northeastern White Pine Priced. Office of Price Administration. Shipments of Northeastern white pine which originate at the mill are placed under specific maximum prices by Maximum Price Regulation, effective September 19.

Corundum Order Broadened. War Production Board. The order controlling allocation and use of corundum, M-89, was issued in amended form today to include control over use of corundum in the hands of consumers, and to write into the definition of material covered by the order corundum superfine flour.

Turbo-Blower Order Widened. War Production Board. Order L-163, covering the production and distribution of turbo-blowers, was amended (No. 1, effective October 1) to include a wider range of machines.

Tracklaying Tractor Order Interpreted. War Production Board. In order to avoid unnecessary cross-hauling, the Director General for Operations today issued an interpretation (No. 1) of Order L-53-b, governing the production and distribution of parts of tracklaying tractors, so that repair parts may be shipped directly to a consumer.

Businessmen Urged to Use Local WPB Offices. War Production Board. WPB again urged businessmen that whenever they wish to obtain information from WPB they should go to their regional or field offices before coming to Washington.

Regional Emergency Materials Plan Announced. War Production Board. In a move to prevent stoppages or slow-downs in essential production that might arise from lack of small amounts of critical materials, WPB has authorized its regional offices to assign high preference ratings for the use of earmarked materials in emergency situations.

Concrete Tires Used at Power Project. Bureau of Reclamation. Commissioner Page reported to Secretary Ickes that an engineer on the Parker dam power project near Phoenix, Ariz., had cast reinforced concrete tires on the rims of a 4-wheeled portable welding machine.

(Continued on page 65)

PERSONALS

D. C. Jackling, of San Francisco, retired October 1 as mining director of the Kenaecott Copper Corp., under



D. C. Jackling

the terms of the company's retirement pension plan. He continues as a director of the company.

Appointment of **George H. Seitz** as district manager at Detroit, for the Koppers Coal Division of Eastern Gas and Fuel Associates, was announced today by **Walter Rothenhoefer**, general manager of sales. In taking over the Detroit managership, Mr. Seitz succeeds **R. A. Ewald**, recently deceased.

Kenneth L. Cochran, formerly geologist for the Combined Metals Reduction Co., Pioche, Nev., recently assumed his new duties in the production section of the Zinc Branch, War Production Board, Washington, D. C.

R. S. Handy, mill superintendent for the Bunker Hill & Sullivan Mining & Concentrating Company for the past 32 years, has retired from active duty, but will remain in the employ of the company as consulting metallurgist. He will continue to make his home in Kellogg and will carry on a general consulting practice in ore dressing.

Arthur Crago, formerly manager of the Phosphate Recovery Corporation, Mulberry, Fla., is now manager of The Phosphate Mining Company at Nichols, Fla.

Dr. Allen T. Cole has been appointed manager of the Phosphate Recovery Corporation, with headquarters at Mulberry, Fla.

Dr. Thomas G. Murdock, formerly assistant state geologist, Division of Mineral Resources, Department of Conservation and Development of North Carolina, recently left for Brazil where he will undertake geological work.

D. K. Scott, formerly superintendent of the mechanical department, Pond Creek Pochontas Co., has been named superintendent of No. 4 mine, Bartley, W. Va., succeeding **H. A. Jones**, resigned. **Ernest Stepp**, assistant superintendent of the mechanical department, has been made superintendent.

R. B. Watts has been appointed superintendent of the Sayreton mines, Republic Steel Corp., Sayreton, Ala. Mr. Watts was formerly superintendent of Edgewater mine, Tennessee Coal, Iron & Railroad Co., Pratt City, Ala.

Clifford R. Wilfley, mining engineer of Denver, has joined the staff of the U. S. Bureau of Mines at Denver, which is under supervision of **L. K. Jacobsen**, district engineer.

The Bureau of Mines is making a survey of the action of coal in storage under various conditions in all parts of the United States. Experts who will assist in this survey include **W. D. Langtry**, **H. C. Carroll**, **W. W. Anderson**, **G. E. Keller** and **R. W. Langtry**, all of the Commercial Testing and Engineering Company, Chicago, Ill., in the Midwest; and **Douglas Henderson** and **C. T. Engvaldsen** of the firm of Gould, Henderson and Brunhes, New York, in the East.

John R. Reigart, of Baxter Springs, well-known Tri-State mine operator, has accepted a position as safety engineer for the St. Louis Smelting & Refining Co. Mr. Reigart formerly was manager of the Iron Mountain Lead and Zinc Co., and subsequently was employed by the Eagle-Picher Mining and Smelting Co., Beck Mining Co., and the Lula Bell Mining Co.

Paul Fitzsimmons, geologist of the Oregon Department of Geology and Mineral Industries, is mapping the Pine quadrangle in southern Baker County.

B. W. Deringer, a principal price examiner, for the last two years with the Bituminous Coal Division, Washington, D. C., resigned September 5 to accept a position with the Central Pennsylvania Bituminous Coal Producers' Association, Altoona, Pa. He is to be in charge of the victory production drive, a joint undertaking of the operators, miners, War Production Board, Manpower Board and Selective Service to increase production of bituminous coal in District 1 necessary in the country's war effort. **Clarence Donaldson**, vice president of District 2, United Mine Workers of America, will be associated with Mr. Deringer in this work.

Charles A. Thompson, of the Pittsburgh office of Robins Conveying Belt Co., Passaic, N. J., has become a lieutenant in the United States Navy. A graduate of Carnegie Tech., Lieut. Thompson had considerable engineering experience before joining the Robins Sales Staff.

Floyd Mercer, general manager, Elkhorn Junior Coal Co., Millstone, Ky., for ten years or more, has moved to Hot Spot, Ky., where he has accepted the position of general manager of the Hot Spot Coal Co.

Charles G. Maier, noted research metallurgist for nearly 20 years associated with the U. S. Bureau of Mines, has been named to the supervisory



Chas. G. Maier

staff of Battelle Memorial Institute, Columbus, Ohio. According to **Clyde E. Williams**, Battelle director, Mr. Maier will direct and correlate an enlarged program of fundamental research and will serve as advisor and consultant to the Institute's war research for the Government and industry.

H. L. Watson, since 1934 executive vice president and director of the DeLaval Steam Turbine Co., Trenton, N. J., has been elected to the presidency of that company, succeeding **Francis J. Arend**, who died August 24, 1942.

At the annual meeting of the West Virginia Mining Institute, held in Morgantown, October 16 and 17, the



John T. Sydnor

following new officers were elected: John Sydnor, of Omar, W. Va., president; D. L. McElroy, secretary-treasurer. Added to the list of vice presidents were J. J. Foster, of Holden, W. Va., and William Findlay, of Fairmont.

Fred J. Stephenson, formerly of Bluefield, but now in charge of the West Virginia Branch of the Mining Branch, Priorities Division, WPB, Charleston, was a recent visitor in the Pocahontas field with Richard M. McQuail, who occupies a similar position in Harrisburg, Pa., for conference with coal operators.

Dr. Daniel Q. Posin, assistant professor of physics at Montana University and formerly professor of physics and mathematics at the University of Panama, has been named acting professor of physics at Montana School of Mines.

C. E. Lawall, president of West Virginia University, has been elected for a three-year term to the Council of the Society.

An advisory committee consisting of quicksilver producers has been formed to consult with WPB on problems confronting the industry. The committee is as follows:

R. J. Lund, chief of Miscellaneous Minerals Branch, presiding officer; B. C. Austin, president, B. C. Austin & Co., San Francisco, Calif.; Worthen Bradley, president, Bradley Mining Co., San Francisco, Calif.; H. W. Gould, president, New Idria Quicksilver Co., San Francisco, Calif.; A. E. Humphreys, president, Humphreys Gold Corporation, Denver, Colo.; W. W. Kelly, president, Texas Mercury Co., Study Butte (Brewster County), Tex.; F. Eugene Newbold, president, New Almaden Corp., Philadelphia, Pa.; L. K. Requa, president, Idaho Almaden Mines Co., Weiser, Idaho; H. D. Tudor, president, Mercury Mines, San Francisco, Calif.; S. H. Williston, vice president, Horse Heaven Mines, Inc., Portland, Ore.

C. Plumer Pride, formerly safety director for the Christopher Mining Corp., Morgantown, W. Va., has been appointed district mine inspector for the West Virginia Department of Mines.

David P. Strickler, prominent attorney of Colorado Springs, has been named a director of Golden Cycle Corp. He is resident trustee of the Myron Stratton Home and is prominent in operation of all Cripple Creek companies controlled by that organization.

Benjamin F. Shepherd, chief metallurgist of Ingersoll-Rand Co., and a past president of the American Society for Metals, was awarded the Albert Sauveur Achievement Medal of the A. S. M. at the recent National Metal Congress held in Cleveland.

Percy Galeener has accepted a position as mining engineer for the Dering Coal Company at its Rex No. 2 mine, Eldorado, Ill. He was formerly mine foreman of the Wasson Coal Co., Harrisburg, Ill.

R. J. Howard, Jenkins, Ky., has been named district engineer by the Consolidation Coal Co., succeeding L. E. Kelley, who resigned to go with the Red Jacket Coal Co. Mr. Kelley had been division or district engineer for Consol for many years.

L. Newton Thomas, vice president of the Carbon Fuel Company, was



L. Newton Thomas

elected president of The Kanawha Coal Operators Association at its recent meeting in Kanawha.

LeRoy Salsich, president of the Oliver Iron Mining Co., announced on September 29 the retirement of William H. Plummer, general superintendent of the Canisteo district, after 41 years of continuous service. Edwin A. Friedman, assistant superintendent, has been named Mr. Plummer's successor.

L. D. Gordon, well known Nevada mining man and former Nye County resident, is now in San Francisco where he is representative for the RFC in mining activities in connection with the mine loan program.

C. R. Kuzell has been placed in charge of labor relations for the mining division of the Phelps Dodge Corp. He will continue in the capacity of manager of the United Verde branch of the Phelps Dodge Corp. with headquarters in Clarkdale, Ariz.

Harold B. Wickey has joined the staff of the Mining Branch, WPB, as an assistant technical advisor on mine priorities. He was formerly safety director for the Davis Coal and Coke Co., Thomas, W. Va.

John B. DeMille, consulting geologist of Montreal, is in Washington for the duration on a war service appointment as senior engineer with the Mining Section, Self-Liquidating Division of the Reconstruction Finance Corporation.

—Obituaries—

Reginald M. Rowe, assistant manager of the Atlantic branch of the National Lead Company, died October 6 at the Beekman Street Hospital after a long illness, at the age of 54.

J. Parke Channing, 79, died on Sunday, October 18, in Los Angeles, Calif. As a consulting engineer he developed and equipped the mines and reduction works of the Tennessee Copper Co., of which he was president from 1903 to 1908. He was also vice president of the Miami Copper Co.

Mr. Channing was president of the Mining and Metallurgical Society of America from 1910 to 1912. During the depression following the first World War he was vice president of the American Engineering Council of the Federated American Engineering Societies, which organization made a survey for the elimination of waste in the nation's industry to curb unemployment.

G. Richardson Gabell, vice president and general sales agent of Thorne, Neale and Co., died suddenly September 25 in Jefferson Hospital, in Philadelphia. Death was due to a heart attack.

George C. Knox of Washington, administrative officer of the Zinc Board of WPB, died September 20. He was a former assistant to the president of the United Verde Copper Co., and a veteran of World War I.

News and Views

Eastern



States

WEST VIRGINIA

New Mineral Industries Building Dedicated in Morgantown

The new Mineral Industries Building in Morgantown, at West Virginia University, was formally dedicated on October 16, with ceremonies held in Reynolds Hall. The occasion was properly described by visitors and speakers as one placing West Virginia's mineral resources and chemical industries on the threshold of greater development. Significance was given to this forecast by the presence of engineers, executives and industrialists from many states, as well as from West Virginia's coal, oil and gas, chemical and ceramic industries, all of whom already have contributed much to the war effort and to the welfare of the state.

Robert F. Roth, president of the State Board of Control, presented the keys of the building to Charles E. Lawall, president of the university. Following the acceptance speech by President Lawall, Governor Mathew M. Neely addressed the gathering. Others on the program were Sidney D. Kirkpatrick, president of the American Institute of Chemical Engineers, and editor of *Chemical and Metallurgical Engineering*; Morris M. Leighton, director of the Illinois Geological Survey; and Raymond E. Salvati, vice president of the Island Creek Coal Company. Following these addresses a reception for delegates and guests was held at the home of President and Mrs. Lawall.

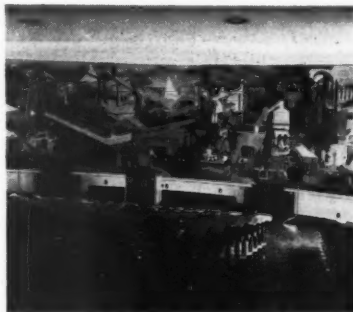
The dedication banquet was held at the Hotel Morgan with Arthur B. Koontz, president of the Board of Governors acting as toastmaster. The

leading speaker of the evening was Eugene McAuliffe, president of the American Institute of Mining & Metallurgical Engineers, and president of the Union Pacific Coal Company, whose stirring talk impressed his listeners with the foreboding fact of how little many people in this country realize the seriousness of the war. Short talks were given by Noel Robinson, president of the South Penn Oil Company, and H. E. Thompson, vice president of the Carbide and Carbon Chemical Corporation.

On the following day the West Virginia Coal Mining Institute held its 35th annual meeting in the new auditorium of the new Mineral Industries Building. Brig. Gen. Frank J. Mc-

Sherry, director of operations, War Manpower Commission, was on the program but was unavoidably detained and was unable to meet his appointment. An instructive movie entitled *Conservation of Rubber for Industrial Uses* was shown by the Goodyear Tire and Rubber Company. Eugene McAuliffe made a brief talk to members as did Jesse Redyard, new chief of West Virginia Department of Mines.

Other meetings included those in-



In the new auditorium



The new Mineral Industries Building at West Virginia University, Morgantown, W. Va.

terested in chemical engineering, chemistry, metallurgy and ceramics. Willard W. Hodge, head, Department of Chemical Engineering, presided. At a meeting of Geology and Geological Survey, Paul H. Price, head of Department of Geology; Charles Brewer and John Goodman presided. The annual meeting of the Allegheny Section, S. P. E. E., with president of the university, Charles E. Lawall, presiding, was also held.

A luncheon held in the ballroom of the Hotel Morgan with John D. Battle, executive secretary of the National Coal Association as luncheon speaker, closed the two-day celebration.

»»» The Kanawha Coal Operators Association held its annual meeting for election of officers in Charleston on October 15 at the Kanawha Country Club. Former Senator Edward R. Burke, of Nebraska, addressed the gathering about the important job coal is doing for the war effort. Officers elected were: L. Newton Thomas, president; Duncan C. Kennedy was reelected executive secretary; Carl Colcord, Colcord Coal Co., vice president; John L. Dickinson, treasurer; and W. W. Miller, A. S. Wilson, C. A. Cabell, A. W. Pollock, John Laing, F. L. Hornick, Garner Williams, and F. O. Harris, board of directors.

PENNSYLVANIA

»»» Members of the Anthracite Industry Committee met on September 28 at Hazleton, Pa., and discussed the move of increased wages to miners and the possible raising of ceiling prices on anthracite by OPA. The backlog of unfilled orders for anthracite and the need for greater output through a six-day work week was also discussed. To do this it was found that price levels would have to be lifted by OPA to pay the miners overtime. A resolution was adopted, stating that OPA should grant the industry relief so that development and production could be conducted efficiently.

»»» The Coal Mining Institute of America will hold its annual meeting at the Fort Pitt Hotel, Pittsburgh, Pa., on December 10 and 11.

»»» A dinner and meeting was held for the members of the labor-management committees of the Pittsburgh Coal Co., together with members of safety committees on September 19 at Washington, Pa. Employees from the company's various mines and preparation plants attended. J. B. Morrow, president of the company, spoke and said that victory in the total war effort meant that labor



A Caterpillar diesel-powered electric set provides energy at the property of the Shaffer Coal Company, Windber, Pa.

and management would retain the right to meet together and scrap together if necessary. He stressed the point that labor and management

must pledge that not a single plant producing war material would find the need of shutting down because of a shortage of coal.



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and R. B. Miernicke are the incorporators.

»» The Stevens Coal Co. has increased the capacity of its anthracite preparation plant at Trevorton, Northumberland County. George H. Jones, Shamokin, Pa., is president.

KENTUCKY

»» Emulating the colorful festivals, such as those held to do honor to cotton, peaches, and other products vital to normal life, a Coal Festival was held early in September at Central City, Ky. A parade marched through the town and the event was climaxed by crowning a Coal Queen. Among other events was a coal-loading contest, sponsored by local U. M. W. A. unions.

»» A new company, known as the Premier-Jellico Coal Corp., of Middlesboro, Ky., was recently organized by F. W. and H. O. Smith and J. Burnside.

»» A company known as the Carter County Mining Co., of Olive Hill, was recently incorporated by S. C. Tabor, G. B. Kiser and Garnett Tabor.

ALABAMA

»» Rehabilitation of the No. 3 slope in the Clark seam of the Roden Coal Co., Marvel, Ala., has been completed. Production started at 50 tons per day and is gradually being increased. B. F. Roden is president, with offices at 1201 Third Avenue, Birmingham, and C. C. McGraw is general superintendent.

»» The U. S. Bureau of Mines has moved its Birmingham district office from the Federal Building to

new quarters in Room 1241, Martin Building, Birmingham.

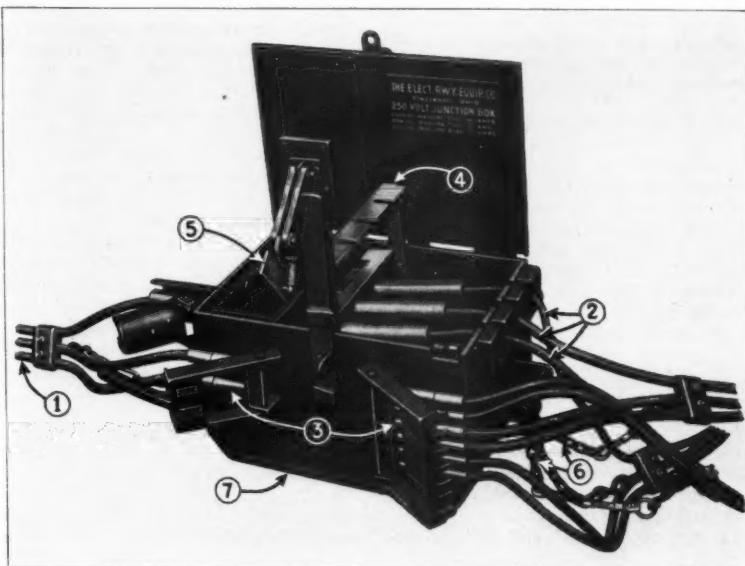
»» Walter J. Kelly was recently appointed manager of the Industrial Relations Department, Tennessee Coal, Iron & Railroad Co., and John H. Williamson was made assistant manager. James F. Vance, formerly head of the department, has retired under the company's retirement plan.

»» The tipple and preparation plant at the "E" mine in Blossburg of the Brookside-Pratt Mining Co. was

destroyed by fire on September 27. The estimated loss is around \$75,000. The plant is being replaced sooner than expected as suitable equipment has been found at a mine not far away which had been permanently shut down.

OHIO

»» The Hanna Coal Co. is curtailing mining operations from a six- to a five-day week at its Piney Fork mine in Jefferson County because of insufficient man power. This mine is the largest producer of bituminous coal in Ohio. James Hyslop is general manager.



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Oliver Building Pittsburgh, Pa.



MISSOURI

»»» The Park City Consolidated Mines Co., of Park City, Utah, plans developing and operating a lead mine in Missouri. Harris Hammond, 39 Broadway, New York, is president. Gloyd M. Wiles, Box 30, Baxter Springs, Kans., is vice president and Allan R. Reiser, Park City, Utah, is general superintendent of mines. An RFC loan has been granted to rehabilitate the mine.

»»» A group of senior students of the Department of Metallurgical Engineering at Missouri School of Mines and Metallurgy attended the National Metal Congress and Exposition in Cleveland, during the week of October 12. The trip was sponsored by Prof. C. Y. Clayton, of the Missouri School of Mines, a national trustee of the Society.

A similar group trip was made by the junior class of Pennsylvania State College.

»»» There has been no serious shortage of zinc, which appears in more different places in the war effort than any other metal, because zinc producers "were ready to go" when this country went to war, Lieut. Col. Richard W. Coward said on Oc-

tober 14 when presenting the Army-Navy E award to American Zinc Co. of Illinois, at Monsanto, Ill.

George C. Heikes, chief of the zinc branch of the War Production Board, said the company's work was "an outstanding example of highly trained leadership."

Howard I. Young, president of the company, and William G. Irwin, chairman of the Executive Committee of American Zinc, Lead & Smelting Co., parent company, accepted the award. Irwin awarded a \$25 war bond to each employee. Lieut. Com. D. J. Williams, naval adviser of the WPB, presented token pins to two union officers representing the workers who are members of CIO United Mine, Mill & Smelter Workers, Local 638.

Senator C. Wayland Brooks (Illinois) also spoke. A band and color guard from Scott Field participated in the flag-raising ceremonies.

ILLINOIS

»»» The largest coal output since 1929 was reported for 1941 by the Illinois State Department of Mines. Total production in the state last year was 55,365,835 tons, against the all-time high of 61,127,759 tons in

1929. The 1941 figure was 4,083,233 tons above the output in 1940. Reports from 893 mines in 53 counties accounted for the 1941 production. The largest producer was Chicago, Wilmington & Franklin Coal Co.'s No. 2 mine at West Frankfort, which accounted for 1,690,000 tons.

»»» Illinois producers have been authorized to charge minimum prices for "free alongside" delivery of coal shipped via river barge to the Minneapolis Street Railway Co. for consumption in its plant at Minneapolis in an order issued by Dan H. Wheeler, Director of the Bituminous Coal Division of the Department of the Interior. These lower minimum prices were established in accordance with the "Special Cases" provisions of the price schedule for District No. 10, which contemplated relief where, in the absence of price regulation, future developments would make river coals regularly cheaper than or non-competitive with all-rail coals.

»»» With a record attendance of 500, the Illinois Mining Institute celebrated its golden anniversary at its annual meeting at the Abraham Lincoln Hotel, Springfield, on Friday, October 23. Carl T. Hayden, vice president, Sahara Coal Company, was elected president for the coming year, succeeding J. A. Jefferis, c/o Illinois Terminal Railroad System, and B. E. Schonthal was again reelected secretary-treasurer.

The program included papers on "Federal Coal Mine Inspection Work," by E. H. Denny, chief of the Coal Mine Inspection Division of the U. S. Bureau of Mines; "Industrial Salvage with Reference to Coal Mines," by Dr. R. E. Snoberger, Industrial Salvage Section, W.P.B. Bureau of Industrial Conservation; "On-Shift versus Off-Shift Shooting in Illinois Mines," by Howard Lewis, underground superintendent of Old Ben Coal Corporation; "Present and Future Possibilities for Smokeless Combustion of Illinois Coal," by Prof. J. R. Fellows, University of Illinois; and "Priorities for the Coal Mining Industry," by D. L. McElroy, technical advisor for coal priorities, War Production Board.

The annual dinner in the evening was presided over by Thomas Moses, as toastmaster. Dean Charles M. Thompson, of the College of Commerce and Business Administration, University of Illinois, presented a brief address on "Some Fundamental Economic Truths," and the guest speaker was Dr. Wilbur A. Nelson, Administrator, Mining Branch, War Production Board.

On the day following the meeting, a large crowd of convention visitors attended the Notre Dame-Illinois football game at Champaign.



—COURTESY OF THE ST. LOUIS POST-DISPATCH

The Army-Navy "E" flag presented at the American Zinc Company of Illinois. From left: Howard I. Young, president of the company; Lt. Col. Richard W. Coward, Geo. C. Heikes, chief of zinc branch, WPB; Lt. Commander D. J. Williams, and Charles E. Nalley, president of Zinc Workers Union

MICHIGAN

»»» A large plant is being erected for the reclamation of copper for an old amygdaloid tailings dump at Mason, Mich. Operations are being conducted by the Quincy Mining Co.

»»» Calumet & Hecla Consolidated Copper Co. continues to produce copper from two sources, one from the Ahmeek, Peninsula and Douglas lode mines in Keweenaw County near Calumet and the other from the sands deposited in Torch Lake, which are tailings accumulated over a long period of years. These tailings are reported to have yielded 14.28 lb. of copper from each ton excavated. At present two hydraulic dredges are removing the tailings. Near its Ahmeek mine the company is sinking the new "B" shaft for future production.

»»» The North Range Mining Co. is shipping iron ore from its Blueberry and Mary Charlotte properties, near Ishpeming and Negaunee. At the Blueberry mine new work has started on the B level.

»»» The first Minute Man Flag to be awarded in upper Michigan was presented to the Lake Shore Engineering Co., of Marquette and Iron Mountain. The award is from the U. S. Treasury and signifies that 90 percent or more of its employees are participating in the purchase of war bonds.

»»» The use of powdered metals in making parts for war equipment is advancing rapidly. To serve the Army and Navy in its use of powdered metals, the Powdered Metals Institute was recently formed. Headquarters of the organization is Saginaw, Mich., and officers are: Chairman, L. E. Field, vice president, U. S. Graphite Co.; vice chairman, A. J. Langhammer, president, the Oilite Division of Chrysler Corp.; secretary, E. S. Patch, sales manager, Moraine Products, a division of General Motors.

MINNESOTA

»»» The Charleson Iron Mining Co. was the successful bidder for a new lease on the Missabe Mountain iron mine at Virginia, Minn. The property is being rehabilitated and will be ready for the 1943 season. A conveyor belt system is reported planned to be installed in the mine. E. F. Remer, of Hibbing, Minn., is president, and E. W. Leach is manager.

»»» Stripping operations have been started by the Oliver Iron Mining Co. on the Rouchleau iron ore

property, near Virginia. A 5-cu.-yd. electric shovel is removing the overburden. The property is being prepared for 1943 production. W. F. Pellenz is general superintendent in charge of operations.

»»» Demand for iron ore is requiring much prospecting and exploration, in which drilling contributes considerable important information. Extensive drilling programs are under way in the Lake Superior iron region, particularly in the Cuyuna and Mesabi ranges.

SOUTH DAKOTA

»»» The recent order that stopped gold mines from breaking ore after midnight October 15 will wipe out 88 percent of South Dakota's mineral production, and many hundreds of men are seeking other jobs. It has also stopped revenue for the state government as the gold mining industry supplied about one-third of the total. The Homestake mine, largest in the nation, at Lead, S. Dak., yielded about \$3,500,000 for the state in 1941. Residents of the state, totaling about 650,000, may now expect additional taxation to make up for the loss. Homestake has been paying dividends yielding about \$9,000,000 of which \$2,000,000 were received by people in the state.

Business in the mining communities has been virtually paralyzed and many homes are being disrupted. The company has maintained a splendid relationship with its employees and labor difficulties were, therefore, practically unheard of. The Homestake payroll in 1941 totaled around \$4,300,000, approximately \$1,950 for each employee.

»»» Belle Eldridge gold mines in Spruce Gulch, near Deadwood, shipped 80 tons of zinc concentrates from its operations this summer. Delivery was made to the American Smelting & Refining Co., at Amarillo, Tex.

»»» The Climax mica mine near Custer, S. Dak., was recently reported sold by B. B. Albright, of Seattle, Wash., to the Asheville Mica Co., of North Carolina.

TEXAS

»»» Zinc smelters at Amarillo and Dumas, Tex., of the American Smelting & Refining Co. and American Zinc, Lead & Smelting Co., respectively, have been authorized by the Metals Reserve Co. to accept all zinc ores offered and, in the event they cannot immediately utilize the ores, to stockpile them at Government expense.



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COLORADO

»»» The world's largest producer of molybdenum, the Climax Molybdenum Co., was awarded the Army-Navy "E" on October 4. This coveted award, symbolizing efficiency, was presented to the company by Brig. Gen. Robert L. Denig, Director of

the U. S. Marine Corps, Public Relations Division. The ceremony took place in the company's large recreation hall at Climax, and lasted only one-half hour in order to keep production loss at a minimum, as many employees of the company participated. Mr. Max Schott, president of the company, upon accepting the award said:



The Army-Navy "E" award to the Climax Molybdenum Company is held on the left by S. J. Parker, mine representative; Michael Verant, mill representative; John E. Saska, Jr., Langeloth representative, and A. J. Herzig of the research department, Detroit, Mich.



Mr. Max Schott, president of Climax Molybdenum Company addressed employees and Army and Navy officials attending the ceremony

"This award means a lot to all of us. It's the highest recognition of its kind and all of our employees will look upon it as something tremendously encouraging. We're all human and actually we haven't done any more than our duty—to do everything possible in the physical limits of production. But to learn that these efforts have been so highly recognized is a source of profound pleasure." Lieut. Col. Marshall Stubbs, of the Chemical Warfare Service, in Denver, presented the "E" pins to four representatives of the Climax employees. Officials of the Climax Company from New York and Detroit who attended the affair were: W. P. Woodside, Detroit, vice president in charge of research; Alvin J. Herzig, Detroit, chief metallurgist; J. B. Thorpe, executive vice president; Arthur Linz, New York, vice president in charge of the conversion plant at Langeloth, Pa.; W. S. Gordon, New York, general counsel and member of the board of directors; D. F. Haley, vice president and consulting engineer; and W. J. Coulter, manager of operations, Denver.

Not only the mine at Climax will fly the "E" pennant, but the Langeloth plant in Pennsylvania and the research laboratory at Detroit will also share these honors.

Employees receiving the "E" pins representing the workers were: Stonewall Jackson Parker, of Climax, a miner, with 9 years' service; Michael Verant, a crushing plant employee of 11 years' service; and John Saska, Jr., electrician helper at the Langeloth plant, and Alvin Herzig, chief metallurgist at Detroit.

»»» The Cripple Creek district in

Colorado, the state's largest gold-producing center, has been hard hit by the recent WPB order closing gold mines. Commenting on the situation, A. H. Bebee, general manager of the Carlton interests in Cripple Creek, said: "Men now employed at big gold mines here are too old to migrate and, more than that, they are permanently settled and own their homes. A recent survey at the Cresson showed our miners are 99 percent homeowners. The gold mines have not been able to compete with war industries so far as wages go. Young men have been drafted. Those left are the old-time miners who want to remain and have not much chance to do anything else."

"Both the towns of Victor and Cripple Creek, with a population of from 1,200 to 1,300 each, depend entirely on gold mining for their livelihood, so they also will be thrown out of a means of existence."

»»» The new vanadium plant in Durango, Colo., produced its first metal late in September. Thomas Brock is superintendent.

UTAH

»»» Coal mining in Utah employed 2,745 men in and about the mines during the calendar year 1941, according to the U. S. Bureau of Mines. Production of coal amounted to more than 4,000,000 tons, an increase of 14 percent over the output of the previous year. The mines were active for 604,993 man-days, an average of 220 days per man, which was 17 more work days per employee than in 1940.

Sixteen employees were killed by accidents during 1941, whereas in 1940 only four were killed. Non-fatal injuries number 456, an even 100 more than in 1940. This increase in accidents was due to increased production, which was a half million more tons in 1941 than in 1940; the time of exposure to accident hazards also increased about 485,000 man-hours. Carbon County was the largest producer of coal and the largest employer of men, accounting for most of the tonnage and employment. No major disasters have occurred in Utah since March 8, 1930, when five men were killed by an explosion in a mine at Lynn.

»»» More than 8,000 men are now employed in construction of the tremendous Geneva Steel Works, near Provo, Utah. The Columbia Steel

Co., subsidiary of United States Steel Corp., is constructing the giant plant for the Defense Plant Corp. The Geneva coal mine, which will supply coal to the new plant, started production in October. Six and one-half miles of railroad, to haul coal from the mine to the plant, have been completed. Facilities for increased production of iron ore at Iron Mountain, Utah, have also been completed.

»»» Recent drilling near Thompson, Utah, has disclosed the possibility of a large deposit of carnallite, a hydrous chloride of potassium and magnesium. John Sandberg, president of Utah Magnesium Co., the company on whose property the drilling was done recently, commented as follows about the drilling results: "Our engineers, Shreve, Anderson and Walker, and O. W. Burk Co., of Detroit, Mich., confirm the statement that the well which has been drilled by the defense plant corporation on our property near Thompson, Utah, has a total of 70 ft. of approximately 45 percent carnallite which is confined within the limits of a 200 ft. zone. These records were taken from the records of the U. S. Bureau of Mines and this is considered the richest deposit of carnallite so far discovered in the United States. Carnallite is a salt consisting of mag-

nesium and potassium chlorides in combination with water. There is also a considerable section of sylvite which is a potassium salt similar to that now being mined in New Mexico."

»»» Following four years of development and overcoming difficult water problems in driving its long tunnel, the National Tunnel & Mines Co. is entering production of its properties opened by the tunnel in the Bingham district. The tunnel has cut veins at considerable depth below old workings known to contain ore.

Idaho-Utah Miners Granted Wage Increase by War Labor Board

The War Labor Board granted a wage increase of \$1 a day to about 10,000 copper, lead and zinc miners, employed in Idaho and Utah. This step marks the first exception to the Board's policy against wage increases for the duration. The increase has a unique motive of compulsion and cash payments, the intention being to keep miners at work and also make them fulfill their agreements or be penalized. Half of the increase, or 50 cents a day, will be paid regularly every

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your drilling
problems for
further
information



Some Owners of PARMANCO Vertical Drills

The following companies own and operate one or more of these machines at their various mines:

Ayrshire Patoka Collieries Corporation	Indianapolis, Indiana
Chicago Retort & Fire Brick Company	Ottawa, Illinois
A. P. Green Fire Brick Company	Mexico, Missouri
General Chemical Company	Owensville, Missouri
General Refractories Company	Owensville, Missouri
Harbison-Walker Refractories Company	Belle, Missouri
Kentucky-Tennessee Clay Company	Mayfield, Kentucky
Laclede-Christy Clay Products Company	Wellsville, Missouri
Mexico Refractories Company	Mexico, Missouri
Red Wing Sewer Pipe Company	Red Wing, Minnesota
Rousset Brothers Clay Company	Owensville, Missouri
Sherwood-Templeton Coal Company	Indianapolis, Indiana
United Electric Coal Company	St. David, Illinois
Wabash Stone Company	St. Louis, Missouri
Wellsville Fire Brick Company	Wellsville, Missouri

PARIS Manufacturing Co.
PARIS, ILL.
Inc.

pay day; and on every fourth pay day the remaining 50 cents will be paid only to those miners who have complied with the rules governing continuity of work and standards of production. These rules have been worked out by employers and unions for approval by the War Labor Board. It is hoped this arrangement will reduce absenteeism.

Higher Prices Granted for Small Western Lignite Mines

To avert a threat of fuel shortages in the Mountain West, the Office of Price Administration acted on October 20 to speed price adjustments on lignite from small truck mines.

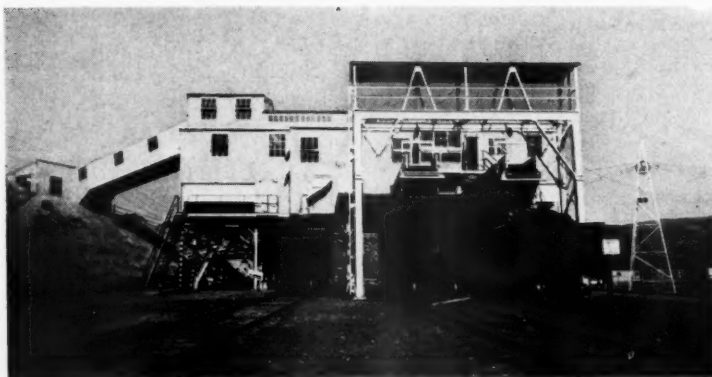
Amendment 7 to Maximum Price Regulation 121 (Miscellaneous Solid Fuels Delivered from Producing Facilities) issued and effective October 20, authorizes OPA or any OPA regional office to adjust maximum prices for lignite truck mines by order whenever such adjustments will prevent a fuel shortage in any given area. Lignite, or sub-bituminous coal, is used extensively in local areas in Colorado, North and South Dakota, Montana and Wyoming for heating homes and schools. The fuel is produced by small mines in these areas and shipped by truck to the consumers. The mines operate only when the need for lignite is present since it cannot be stored for any length of time.

The solid fuels regulation fixes maximum prices on lignite at levels charged during the period December 15-31, 1941. "It appears, however," OPA said, "that costs of production have increased substantially since then. Many of the small mines now find themselves unable to resume operations this fall. The threat of a fuel shortage is a serious one."

The amendment provides that OPA in Washington or any of its regional offices may issue orders adjusting the prices whenever (1) there is a shortage of supply of lignite in any locality which customarily uses it, (2) price adjustments will ease the shortage, and (3) the adjustments will effectuate the purposes of the Emergency Price Control Act, as amended.

WYOMING

»»» The accident-frequency rate for coal mining in Wyoming increased to 46.16 per million man-hours of employment during the calendar year 1941 from 38.91 per million man-hours worked in 1940, according to reports from the mining companies to the Bureau of Mines, United States Department of the Interior. Accidents during 1941 resulted in the death of 13 and in the non-fatal in-



The tipple at D. O. Clark Mine of the Union Pacific Coal Company in Wyoming

jury of 291 of the employees at the mines. Production of coal amounted to 6.7 million tons. This output required the services of 4,758 men working an average of 197 days per man. As the amount of labor performed by all of the employees was equal to approximately 6.6 million man-hours, the production of the state averaged 1 ton per man-hour worked. Both the number of man-hours worked and the quantity of coal produced in 1941 were considerably larger than in 1940.

Sweetwater County was the largest producer as well as the largest employer of men, and was responsible for a greater number of fatal and non-fatal accidents than any other county. However, the accident-frequency rate per million man-hours of exposure to accident hazards was more favorable for the county than for the state as a whole. No major disaster has occurred in Wyoming since February 11, 1938, when five men were killed by an explosion in a mine near Afton.

NEVADA

»»» Control of Basic Magnesium, Inc., has passed to the Anaconda Copper Mining Co. through the acquiring of the interests of Howard Ells, Jr., and associates. Anaconda engineers will take over the management at Luning, Nev., and the British interests (owners of the magnesium recovery process) will continue in charge of the recovery plant near Las Vegas.

»»» The Callahan Zinc Lead Co. is reported to have obtained an option on 16 tungsten claims north of the Nevada Massachusetts Co.'s mine in the Eugene Range. Prospecting and development are under way to determine what the future plans will be. If the property has merit, equipment from a 300-ton mill in Oregon is available for mining and treating the ore. Everett Davis, manager of the company's Idaho mining operations, is directing the work in Nevada.

»»» The National Lead Co., through its Pigments and Chemical Division, recently examined a barium deposit about 35 miles north of Beowawe in Elko County. E. H. Murchisan, engineer for the company, supervised the sampling of the property.

CALIFORNIA

»»» Immediate development of the Phelps and Nichols tungsten properties on Hilton Creek is planned by Panaminas, Inc., of New York City, who recently took over these properties. The company also operates the Adamson mine, near Bishop, where two aerial tramways are being installed and new camp building constructed. A. H. Heller is in charge of Panaminas' western operations.

»»» Walter W. Bradley, state mineralogist, has recently received a report by W. B. Tucker and R. J. Sampson, Division of Mines district mining engineers, on a 25-ton shipment of tin ore from the Evening Star mine near Cima, San Bernardino County. This reported shipment of tin ore is the first recorded from California in 14 years. The ore was consigned to the Tin Processing Corp., a Federal agency, in Texas City, Tex., where Bolivian tin is being smelted.

Samples reported taken by the above agency upon receipt of the shipment gave the following results on analyses by the following firms: Tin Processing Corp., 6.25 percent Sn.; Ledoux, New York, 6.40 percent Sn.; Chas. C. Kawan Co., Chicago, 6.16 percent Sn. The mineral present is cassiterite, the tin oxide.

Considerable work has been done at the Evening Star, resulting in about 600 tons of ore on the dump reportedly averaging 2 percent tin. This ore would hardly pay to ship since the long-frozen price of tin at 52 cents per pound prohibits extensive exploration. Prior to the small pro-

duction of California tin recorded in 1928-1929, a period of some 30 years elapsed since the previous tin production in the eighteen nineties.

»»» The U. S. Vanadium Corp., Bishop, has obtained additional mechanical loading equipment from the Eimco Corp. to speed tunnel operations at its tungsten property. A. I. Rodriguez is mine superintendent.

Arizona

»»» The U. S. Bureau of Mines engineers are examining the Zonia mine, 12 miles from Kirkland, owned by the Hammon Copper Co., of San Francisco. A program of surface trenching, sampling, and diamond drilling is to be followed to determine the copper ore reserves in the deposit.

»»» A survey party is at work on the Reward zinc mine, located in the Vekol Mountains of Pinal County, southern Arizona, 40 miles south of Casa Grande, which is being developed on a cooperative basis by Harry L. Schornick, Kent B. Pomeroy, and Buelah P. Gibson. Shaft repair to make underground workings accessible is being done on a RFC loan, it is said.

»»» Samples for metallurgical tests of copper have been taken by the U. S. Bureau of Mines at the Lake Shore mine, also in the Vekol Mountain area. Previous development indicates a large tonnage of copper ore available.

»»» The War Production Board's impending order closing all gold mines finds the most of the Arizona properties already closed, and others in the process of shutting down, it has been announced in Phoenix. Since March, gold producers have been unable to obtain mining equipment and supplies.

»»» Production is expected to begin soon at the Zannarapolis tungsten property on Burro Creek, northwest of Hillside, Ariz. Ore will be hauled by truck about 14 miles to a concentrator. J. P. Robinson, Jr., and J. P. Zannaras are the operators.

MONTANA

»»» The shaft of the old Fredonia manganese mine near Butte has been rehabilitated under the direction of Fred Masolo and Guy Osello, of Butte, and production is now under way. Shipments of ore are being made to the Metals Reserve stockpile at Butte.

Milling operations have started at the Goldsmith mine, in Current Gulch, near Sheridan, Mont. The 25-ton plant is treating silver-lead ore containing a high lead content. Frank V. Zichosch is general manager.

IDAHO

»»» The Sunshine mine, in the Coeur d'Alene district of Idaho, has recently been mentioned as the nation's only remaining big silver mine, since the closing of the Presidio mine in Texas.

While Sunshine is listed by the United States Bureau of Mines as the largest silver mine in the United States, it still remains a fact that the Sunshine is not strictly a silver mine, because it produces in substantial

quantities antimony, a strategic metal, and copper on the critical list, and lead.

»»» The five big mining corporations of the Coeur d'Alene district of Idaho, the Bunker Hill, Hecla, Federal, Sunshine, and Day interests, are straining every effort to assist the Government in the war effort by producing all the lead, zinc, copper, and antimony the mines are able to produce under existing handicaps of priorities, high wages, controlled metal prices, excessive taxation, and

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"Plenty of valuable, marketable good coal is sent to the refuse pile every day when old-fashioned washing methods are used. But when I'm on the job you can be sure your raw coal yields the maximum GOOD coal."

SuperDuty Diagonal Deck Coal Washing Tables with their extra riffles and separation area give you large savings in recoveries. They answer the demand for greater war production. Step up YOUR daily production by taking advantage of the increased washed coal output and reduced refuse losses made possible by these tables. Save valuable time and labor, as well as money, with SuperDuty Tables. Investigate the many advantages—today.

For complete information on the SuperDuty No. 7 Diagonal Deck Coal Washing Table, write for Bulletin No. 119.



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an unprecedented labor shortage. All of the companies mentioned have gone to large expense on their own account in the construction of new plants to recover waste products or new minerals and the only reason the district is not now producing more mineral than ever before in its history is due entirely to its inability to employ enough men to do the job.

»» The Day interests have recently constructed three new concentrating mills and have reopened two old mines, the Tamarack & Custer and

the Sherman, which had been closed down for several years. In addition the Days are reported to have plans perfected for the remodeling of the Hercules milling plant in Wallace for the treatment of zinc-lead ores from several different properties in the Beaver district.

»» The Hecla Mining Co. is operating at capacity production at the risk of prematurely depleting its ore reserves to the danger point, but is also operating its Gem milling plant on a 7-day-week basis and is planning

the addition of ores from outside sources to maintain a steady tonnage output. With this end in view the company has leased the Silver Cable mine, 6 miles east of Mullan, where it is estimated it has 700,000 tons of zinc-lead ore blocked out ready for mining.

»» In the National War Labor Board's resolution on the granting of a wage increase to Utah and Idaho miners, the Board decided that the Bunker Hill & Sullivan Mining & Concentrating Co. and others shall raise the common labor rate at its lead smelter by 25 cents a day. Retroactive effective dates are stipulated, but since the Board in a modifying statement recognized "that the foregoing proposed wage increase will require a change in the prices of the commodities involved," the order is not made effective until approval is given by the Economic Stabilization Director.

NEW MEXICO

»» Continental Machines, Inc., of Minneapolis, Minn., is reported to have taken over the scheelite and beryllium deposit located by T. C. Parker, of Winston. The deposit is near the junction of the Sierra-Socorro County line in New Mexico.

OREGON

»» It is reported that the construction of a plant at Marschfield, Ore., to separate and concentrate chromium, titanium and zircon from beach sands has been postponed.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

OF THE MINING CONGRESS JOURNAL, published monthly at Washington, D. C., for October 1, 1942.

City of Washington,
District of Columbia, as:

Before me, a notary public in and for the state and county aforesaid, personally appeared B. E. Chambers, who, having been duly sworn according to law, deposes and says that she is the business manager of THE MINING CONGRESS JOURNAL, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 411, Postal Laws and Regulations, printed on the reverse side of this form, to wit:

1. That the names and addresses of the publisher, editor, and business manager are:
Name of publisher, The American Mining Congress, Washington, D. C.
Editor, Harry C. Chellson, Washington, D. C.
Business manager, B. E. Chambers, Washington, D. C.

2. That the owners are: The American Mining Congress—a corporation, not for profit. No stockholders. President, Howard I. Young, St. Louis, Mo.; Secretary, Julian D. Conover, Washington, D. C.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

B. E. CHAMBERS,
Business Manager.

Sworn to and subscribed before me this 21st day of October, 1942.

ELVIN L. LESHGAR,
Notary Public.

(My commission expires January 16, 1944.)

MINING CONGRESS JOURNAL



Right Answers—

TO THREE VITAL WARTIME PROBLEMS

MAINTENANCE POINTER

Your Gardner-Denver Mine Car Loaders have been built to withstand the rigors of underground operating conditions—many operating parts are enclosed, and run in a bath of oil; nevertheless, careful attention to lubrication will help keep your loaders operating at peak performance. Frequent inspection and regular application of quality grease and oil where needed is important.

FASTER PRODUCTION—Operators praise the ability of Gardner-Denver GD-9 Mine Car Loaders to speed the mining cycle—drilling, blasting and mucking. The famous Gardner-Denver fulcrum principle assures more power for crowding into the muck pile—accelerated discharge that fills ore cars to the brim.

Two equally powerful 5-cylinder radial air motors provide plenty of smooth power for both crowd and lift.

CURTAILED MAN POWER WITHOUT CURTAILED PRODUCTION—Mine superintendents have learned that Gardner-Denver Mine Car Loaders help their crews meet today's demands for efficient operation, and mines equipped with these loaders report man-hours conserved while ore production is increased.

GREATER ECONOMY—Management is pleased with the economical performance of the GD-9 Loader—with its ability to lower mucking costs per ton—so important when mining marginal ores to fulfill Victory requirements.



Write for bulletin giving complete information, Gardner-Denver Company, Quincy, Ill.; Seattle; Wallace; Butte; San Francisco; Salt Lake City; Denver; Los Angeles; El Paso.

GARDNER-DENVER Since 1859

|| *Cracking Hard Rock*

(Continued from page 52)

Conveying Machinery Order Issued. War Production Board. The over-all importance of conveying machinery and mechanical power transmission to the war effort was emphasized with issuance October 7 of Order L-193. Restrictions upon production schedules do not apply to underground mining machinery (other than slope conveyors) nor to hoists, graders, draglines and power shovels.

Manganese Steel Castings Prices. Office of Price Administration. Maximum Price Regulation 235, effective October 14, rolls back ceiling prices for manganese steel castings and products to the levels prevailing between October 1 and October 15.

Mines Given Further Priorities Aid. War Production Board. Mines are given further help in maintaining maximum output of critical minerals with the assignment of preference rating AA-2X for delivery of materials for maintenance and repairs by Amendment 4 to Order P-56.

PRP Units May Apply for More Material. War Production Board. Manufacturers working under the Production Requirements Plan who have urgent need of material over and above the amounts authorized for fourth quarter use may apply for additional quantities on Form PD-25F, but are warned that only applications covering material necessary to the war effort or for essential civilian uses can be considered.

Certain Shovel Fabrication Allowed. War Production Board. Shovel manufacturers who had in their possession before August 10 inventories of raw and partly processed steel in shape and sizes not usable under Schedule 1 of Order L-157, are permitted to continue fabrication of this material under Amendment 3, issued today.

|| *Wheels*

(Continued from page 50)

Additional interpretations have developed in connection with the President's Executive Order No. 9240 relating to "double-time" pay for the seventh consecutive day worked. On October 3 the Secretary of Labor stated that the order applies to "all work relating to the prosecution of the war." The General Counsel's Office in the Department of Labor has stated that a producer of ore concentrates is considered to be under the order. In answer to a further question the General Counsel's Office has stated that the payment of double time for the seventh consecutive day worked in any workweek need not be made under a "back-to-back" workweek arrangement entered into with the full consent of the employee. This refers to the practice of having an idle day followed by six days of work plus another six days of work followed by an idle day.

Critical Equipment Situation

While it is well known that operators of mines are having difficulty in securing mine rail, pipe and many other steel products there is a very

serious situation, daily becoming more critical, because of the failure to supply needed materials to the manufacturers of mining machinery and equipment.

Under the Production Requirements Plan there have been very heavy reductions in the allotments of the alloy steels, copper, brass and other essential materials and now even the materials authorized cannot be secured with the AA-3 and AA-4 ratings which have been assigned. Under Priorities Regulation No. 11 the AA-2X ratings assigned to mine operators to secure repair parts cannot be extended by the manufacturers to their suppliers of raw materials and even if such provision is made it will not be sufficient to keep the shops in operation.

There is therefore grave danger that mining machinery manufacturers may be obliged to close or convert their shops to munitions work, following which, even though adequate materials be provided, it would take a long time, running into months, for these manufacturers to resume production of mining machinery and parts for the mines.

Amendment No. 4 to Preference Rating Order P-56, issued in mid-October, grants the highest non-military

GENERAL

Labor-Management Groups in 1,300 Plants. War Production Drive. Labor-management committees to push War Production Drives have been established in a total of 1,300 American war plants, Drive Headquarters announced.

OPA Plans Attack on Hidden Price Rises. Office of Price Administration. Direct attack on the hidden price increases that result from debasement of quality, use of inferior materials, and "skimping" on measurements and workmanship is being launched by OPA, Administrator Henderson announced.

9 Motor Transport Regional Offices. Office of Defense Transportation. ODT announced creation of nine regional field offices under the Division of Motor Transport and appointment of seven of the managers of those offices.

210,000 Autos Left for Rationing. Office of Price Administration. Only about 210,000 passenger automobiles remain for rationing between now and the end of next February, OPA announced on the basis of preliminary figures on actual releases during the first five months of the rationing program and estimated releases for August.

Extra Fuel Oil for Children Under Four. Office of Price Administration. Families with children under four years of age will receive a fuel oil allowance of from 50 to 125 gallons, depending on the heating zone, in addition to their basic ration under the new fuel oil ration plan.

Advertising Expenses in War Contracts. War Production Board. Instructions which will guide Price Adjustment Boards in determining the circumstances under which advertising expenses may be figured as allowable costs in war contracts were made public by Donald Nelson.

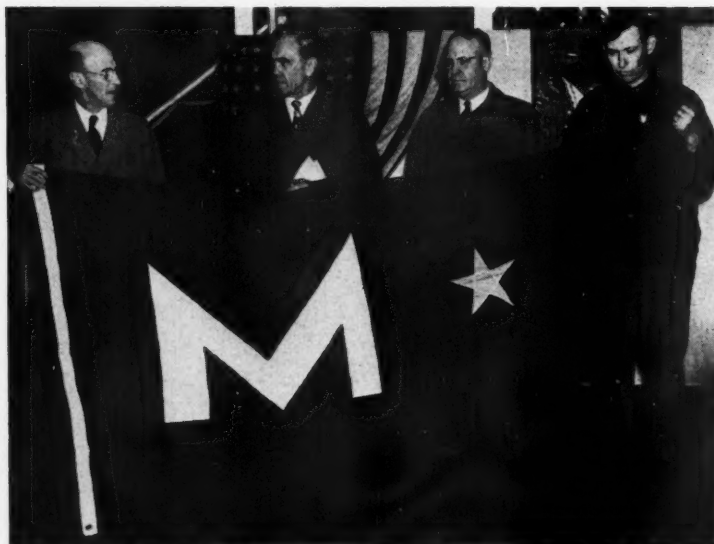
priority rating, AA-2X, for maintenance and repair materials for the mines and ups the rating for operating supplies from A-8 to A-1-a. The AA-2X rating may be used by mines for their whole quota of repair and maintenance materials. Quotas are revised to place all materials included in the Metals List of Priorities Regulation No. 11 on a pound basis, while all other materials continue on a dollar basis.

In the case of the smaller operators, who purchase less than \$5,000 worth each quarter of the materials on the Metals List, varying procedures have been followed in assigning the metals by weight. For fabricated repair parts coal mines are allowed to use 90 percent of the dollar value listed on the fourth quarter quota certificates, metal mines may use 80 percent, non-metallic mines 75 percent.

The complexity of the Production Requirements Plan has made it so burdensome to mine operators that a much simpler procedure is being sought which will reduce the amount of work for everyone, including the WPB. A volume of protests is being received from the field and it is greatly to be hoped that an improved situation will be brought about at least by April, 1943.

Manufacturers Forum

Marion Receives Maritime Award



The Marion Steam Shovel Company, Marion, Ohio, receives the Maritime "M" pennant, the Victory Fleet Flag and Labor Merit badges for each of its employees. Attending the ceremony (left to right) were: J. E. Schmeltzer, Technical Assistant to the Vice-Chairman of the Maritime Commission; Lt. Governor Paul M. Herbert of Ohio; D. J. Shelton, President of the Marion Steam Shovel Company, who accepted the Award in behalf of the company, and Roy Bailey who represented the employees and accepted the Labor Merit Badges in their behalf. Marion is the third company in Ohio to receive this coveted award.

The Marion Steam Shovel Co., Marion, Ohio, was recently awarded the Maritime "M" Pennant, the Victory Fleet Flag, and every employee was given the Maritime Merit Award badge, in recognition of outstanding production achievement on work for the Maritime Commission. The ceremony was attended by employees of the Marion Steam Shovel Co., their families, and many prominent guests and speakers.

Attending for the Maritime Commission was J. E. Schmeltzer, technical assistant to vice chairman of Maritime Commission. Prior to handing the "M" Pennant and Victory Fleet Flag to D. J. Shelton, president of the Marion Steam Shovel Co., Mr. Schmeltzer addressed the Marion workers. He said: "We are gathered here today to honor the men and women, the management and every individual connected with this company for its outstanding production performance and contribution to the shipbuilding program of the United States Maritime Commission.

"The Maritime 'M' Pennant and Victory Eagle Flag which you have just won for past performance symbolizes to the nation—work well done! At the end of six months your production performance will again be reviewed and if it merits the second

award, a gold star, will be added. I present to Mr. Shelton the United States Maritime Commission's most coveted award, the Maritime 'M' Pennant for achievement in production."

Mr. Shelton, upon receiving the award, stated: "In behalf of the Marion Steam Shovel Co. and its employees, it is with great pride that I accept this award from the United States Maritime Commission. Not only are we making these cranes to help build Liberty ships but we are building cranes to load and unload them in ports throughout the world. We are building shovels to dig copper ore, iron ore, limestone for blast furnaces, coal and practically all of the basic materials. All of this must be done before we can have and transport implements of war.

"Early this year I told our manufacturing organization that we had contracted to produce 50 percent more tonnage than has ever been produced by this company in the same period of time. This projected tonnage has not only been accomplished, it has been exceeded. We are ahead of schedule! Credit for this accomplishment goes to our employees who have given their help and cooperation. They have worked seven days a week and 10 and 12 hours a day when required, without complaining. I

want to thank our labor union, its officials, and all departments of the Marion Steam Shovel Co. for the good work they have done."

Safety House Changes Denver Address

Effective immediately, the Denver office of E. D. Bullard Co., manufacturers and distributors of industrial safety equipment, is changed to 18 Wazee Market. The former address was 56 Wazee Market, Denver. Howard Timms, who has been in charge of this office since the resignation of Tom Hallinan, who joined the Army, remains as district manager for the states of Colorado and Wyoming.

Arc Control Stations For Welding

Greater welding output per machine, better control by the operator, and improved welds on thin gauge metal are said to be obtainable through the use of the Honey Bee arc control station recently developed by Wilson Welder & Metals Co., New York, N. Y.

These arc control stations are made in capacities of 75 amperes and 150 amperes, and they are an auxiliary electric device, which is connected in series with the welding circuit of any constant potential arc welding generator. Most conventional drooping voltage generators can be converted quickly and easily to constant potential. For this purpose Wilson supplies a quick-change switch mounted on the generator. A portable switch,



held in the operator's hand, is said to give the operator remote control of the welding current within predetermined limits. This switch may be combined with the electrode holder, if desired.

Advantages pointed out by the manufacturer are: (1) Closer control of the welding current, (2) individual remote control of current, (3) current control to assure sound smooth welds at the end of each bead, and (4) maximum usefulness of each arc-welding generator.

Women in Industry

Believed to be one of the first publications of its kind, a health and safety manual devoted exclusively to the problems of women in industry has been published by the Allis-Chalmers Manufacturing Co. The new manual was written and styled with the women's point of view in mind. Intermingled with the text are attractive line drawings and photographs of women's activities in the plant.

One unusual feature is a section devoted to the proper attire for women in the shop. This section deals particularly with the new safety clothing designed by the health and safety division of the Allis-Chalmers industrial relations department from existing slack suits for sale by na-

tional retail organizations. In addition, the manual also treats with the proper exercises necessary for the maintenance of good physical condition. Other sections discuss hazards to be avoided in the various occupations, including the office workers.

Universal Crusher Company Changes Name

The Universal Crusher Co., a Delaware corporation, with factories and general offices at Cedar Rapids, Iowa, on October 1, 1942, has become the Universal Engineering Co., organized under the laws of the state of Iowa.

Practically all that will be changed is the name, since the officers, executives, and personnel remain the same; and nothing is being eliminated from

the line of equipments manufactured by the original firm.

A. W. Daniels is president; H. F. Rikhoff, secretary-treasurer; A. H. Sargent, vice president; L. S. Hackney, sales manager; and L. W. Dunlap, assistant to the president.

CATALOGS AND BULLETINS

ARC WELDING ACCESSORIES. *General Electric Co.*, Schenectady, N. Y. Bulletin GEA-2704B presents a most complete line of General Electric accessories all designed to make arc welding safer and easier. A feature of the bulletin is the insertion in the back of the book of order blanks, carbon paper and price lists. 28 pp.

BEARING LUBRICATION. *S K F Industries, Inc.*, Front Street and Erie Avenue, Philadelphia, Pa. The company offers a booklet entitled "A Guide to Better Bearing Lubrication." Subjects treated include the function of lubrication, recommended viscosities, oil supply systems, grease lubricants, and other information for the user of bearings regarding their correct lubrication and maintenance. 30 pp.

BEARING METALS. *Magnolia Metal Co.*, Elizabeth, N. J. The company offers a bulletin describing its various lead-base metals offered as a substitute for tin-base bearing metals. A table of recommendations for selecting the correct bearing metal for 135 different types of machinery is also included. 8 pp.

BENTONITE. *American Colloid Co.*, 363 W. Superior Street, Chicago, Ill., offers a folder entitled "Plugging Gas Mains with Bentonite." It describes how a 16-inch burning gas main was stopped by the use of volclay bentonite. 2 pp.

CENTRIFUGAL PUMPS. *Allis-Chalmers Mfg. Co.*, Milwaukee, Wis. Bulletin B6059-H describes construction features, sizes and capacities of centrifugal pumps made by the manufacturer. Included in the bulletin are pump types for every purpose—single and double suction, single and multi-stage, mixed and axial flow, and special pumps to solve special problems. 8 pp.

Worthington Pump & Machinery Corp., Harrison, N. J. Bulletin W-310-B11 is a leaflet describing and illustrating its Type CY centrifugal pumps for pumping water, brine, light oil, drainage and process waste. 1 p.

COAL CRUSHERS AND BREAKERS. *McNally-Pittsburg Mfg. Corp.*, 307 N. Michigan Avenue, Chicago, Ill. Bulletin No. 342 describes and illustrates the manufacturers full line of coal crushing and breaking equipment—breakers for handling the largest lumps produced and reducing to egg or nut sizes, and crushers for reducing to screening or stoker sizes, together with recommendations for the proper application of each type listed. 20 pp.

CONTROL CENTERS. *Trumbull Electric Mfg. Co.*, Plainville, Conn. Bulletin 411 describes and illustrates the manufacturers entire line of control centers, including motor control centers and switchboard control centers. 20 pp. The company also offers a complete list of its control equipment such as switches, industrial breakers, raintight equipment, motor controls, with many tables of specifications, together with a price list. 54 pp.

Photoelectric Relays Control Coal Lorry

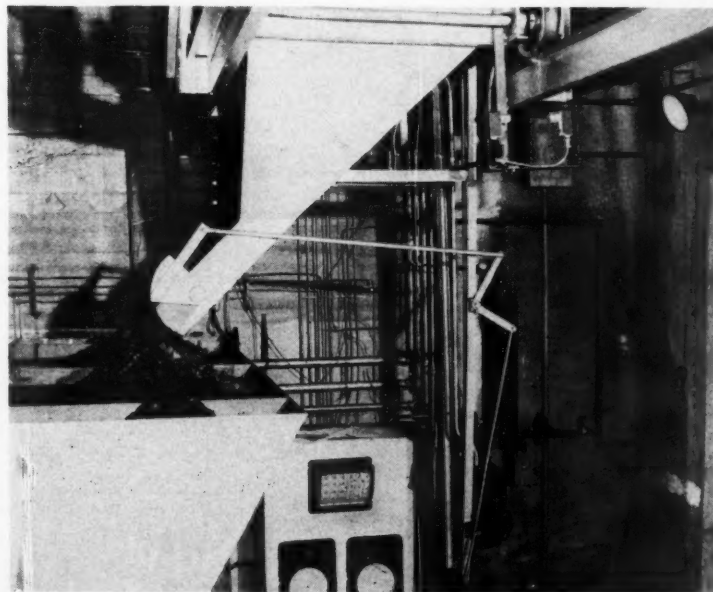
At Golden, Colo., General Electric photoelectric relays play an important role in effectively controlling the movements of a lorry which evenly distributes coal to a sectional hopper feeding a chain-grate boiler. Photoelectric relays were installed on this equipment to replace limit switches, since it was felt they would prove altogether more lasting as well as eliminate the various mechanical changes involved.

As the lorry, which is essentially a large movable coal bin, oscillates slowly back and forth on an overhead track in front of the hopper, hinged vertical uprights in the center of the track between the rails intercept the light beam from the photoelectric re-

lays, which are mounted at each end of the lorry, as it reaches the limit of travel in the forward and reverse directions. Thus the lorry is prevented from traveling too far in either direction.

Furthermore, an electronic time-delay relay permits the lorry to come to a smooth stop, which would probably not occur if the motor were plugged.

Photoelectric relays also control the movements of the lorry when it requires refilling. One of the uprights is let down out of the way to allow the lorry to run a distance of some 30 ft. to the coal bin, where a similar upright intercepts the light beam, thus stopping the lorry.



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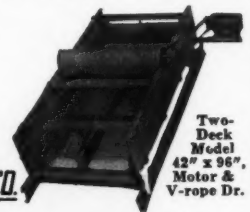
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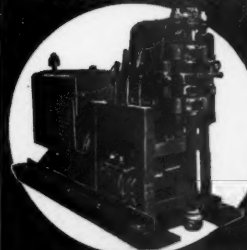
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